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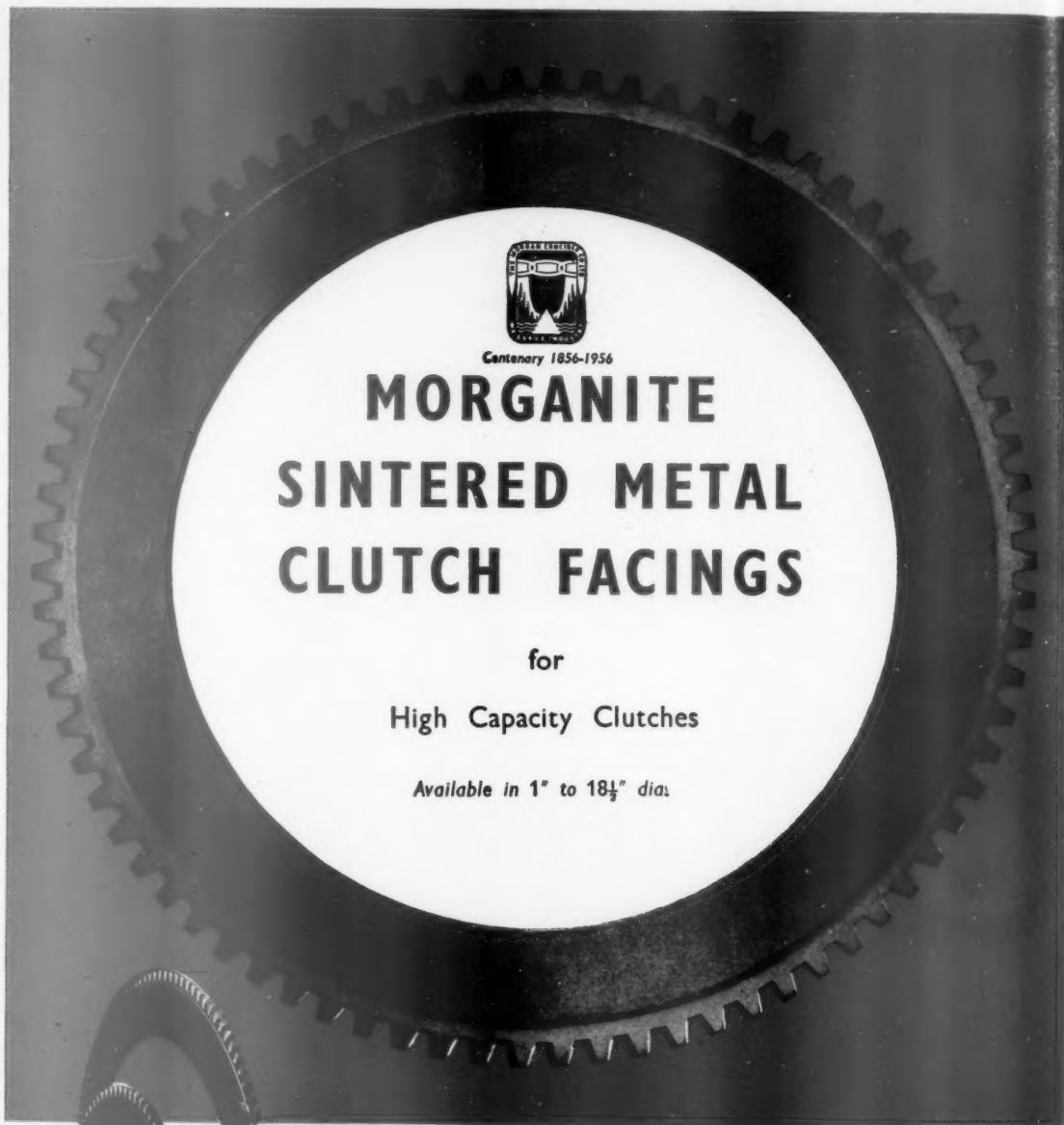
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Unsettled Wages

THE rejection last week by the National Union of Railwaymen of the fair and reasonable wage offer made to all three railway trade unions by the British Transport Commission has thrown the whole matter of railway wages back into the melting pot. Brief particulars of the offer are given in our Staff and Labour columns this week. The N.U.R. has elected to take its original claim for a 10 per cent increase to the final stage of negotiation, the Railway Staff National Tribunal. It is hard to see what will be gained by this because the Tribunal, in its recent award to footplate staff of a 3 per cent increase, showed itself to be mainly concerned with adjusting wage increases to the cost of living, which has risen only slightly as the result of the Suez affair. Unless the Tribunal changes its mind, therefore, its award is not likely to be very different from the Commission offer. The immediate reaction of the Commission to the N.U.R. decision was to withdraw its offer to all three unions. This is unlikely to improve relations between the N.U.R. and the Transport Salaried Staffs' Association, whose members, still awaiting the Commission answer to its proposal for pay increases on a sliding scale, have seen the Commission offer placed before them and then withdrawn before it could even be considered. The executive committee of the Associated Society of Locomotive Engineers & Firemen, which on

January 9 had prudently consolidated its gains by accepting the Tribunal award of 3 per cent, has still a mandate from its members to press for further increases if it deems them justified. The Commission offer would have given further increases in the pay of footplatemen without the need for a new claim; so the Society also probably feels some resentment at the N.U.R. decision. The N.U.R., which is pressing a claim for a 10 per cent increase in London Transport railwaymen's wages, would probably like a settlement there similar to that reached on London busmen's wages, which amounted to an improvement of 4.5 per cent. Its members employed on British Railways, however, would certainly expect a similar increase. The whole question of railway wages at the moment is bedevilled by inter-union rivalries which are doing the unions themselves no good and are preventing the British Transport Commission from setting to work on realistic planning based on costs.

Proposals for Staggered Hours

THE committee which has been investigating London peak-hour traffic conditions, described at the time of its appointment last November by Mr. Harold Watkinson, Minister of Transport & Civil Aviation, as the "crush hour committee," has now confirmed, with statistical evidence, Mr. Watkinson's statement that the peak hour for central London passenger traffic is 5.30 p.m. Some 2,000 employers were asked to give details of the times at which their employees started and finished work, and 60 per cent of the replies have now been received. They show that 96,500 out of some 300,000 employees finish work at 5.30 p.m. The next largest number, 61,000, leaves work at 5 p.m., followed by 42,000 at 5.15 p.m. and 15,000 at 5.45 p.m. Only 19,000 finish at 4.45 p.m. In certain areas the position is even worse. For example, in the area including Piccadilly, Bond Street, Mayfair, Regent Street, Oxford Street, Baker Street, and Great Portland Street, out of 44,000 employees 21,000 leave at 5.30 p.m. The figures obtained by the committee cover roughly one-third of central London, but are regarded as representative of the whole area. The committee is now working out detailed proposals for the staggering of hours.

P.W.I. Conversazione

THE guest of honour at the fifth annual conversazione of the Permanent Way Institution, held last week at the headquarters of the British Transport Commission, was Sir Brian Robertson, Chairman of the Commission. He emphasised the importance of the work of all those concerned with the permanent way, not least in making possible the higher speeds for which provision is made in the modernisation plan for British Railways. In this last case, he rightly pointed out, examples of formidably high performance had been set by some Continental and U.S.A. railways, and the performance of British Railways eventually must be "a bit better than the best." He also referred to the steps being taken to put into service mechanical devices to lighten the task of the permanent way men—although, after installation of these, the importance of the human factor remained as great as ever. The gathering was also addressed by Mr. D. Herlihy, Chief Engineer of Coras Iompair Eireann. An account of the function, attended by Inspecting Officers of Railways of the Ministry of Transport, besides senior officers of the Commission and of British Railways, appears on another page. At the meeting preceding the conversazione, Mr. John Ratter, Technical Adviser, British Transport Commission, was elected President of the Institution in succession to Mr. Arthur Dean.

New Sea Outlet for Central Africa

THE important part played by the Benguela Railway in the economy of the Federation of Rhodesia & Nyasaland was stressed last week by Sir Ulick Alexander, Chairman of Tanganyika Concessions Limited, in his address to the annual meeting of the company, which has provided all the debenture capital and owns 90 per cent of the equity

of the Portuguese company, the Benguela Railway Company, that operates the railway. He was referring to the agreement recently concluded and ratified by the authorities concerned, as recorded in our January 4 issue, affording through rates between the well-equipped port of Lobito, in Portuguese West Africa, and stations on the Rhodesia Railways, and on copper from the Northern Rhodesia mines to Lobito over the Benguela and Bas-Congo Katanga Railways. The fuller use of the link between the Federation and the West Coast of Africa has thus, at long last, been assured, and by opening up the Lobito route, Northern Rhodesia has been brought 2,500 miles nearer Europe.

Developing the Congo and Northern Rhodesia

THE efficiency of the Benguela Railway, which is almost entirely British-equipped, is shown in the successful results of the Benguela Railway Company for 1955. These, Sir Ulick Alexander announced, show a net revenue from the working of approximately £235,000 in excess of 1954, and it appears from figures now available that the excess in 1956 will be appreciably larger. The company paid the interest for the year 1955 on both series of debentures, effected the normal redemption payment, and again distributed a dividend of escudos 11 per share (or 10 per cent) and redeemed an additional £404,900 of its 4 per cent income debentures. Union Minière du Haut Katanga, in which Tanganyika Concessions Limited holds a 14 per cent interest, last July celebrated its jubilee in the Belgian Congo at the same time as that of the Bas-Congo Katanga Railway, with which it is closely associated in building up the prosperity of the Belgian Congo. By supplying surplus hydro-electric power to the Federation, Union Minière is reducing the tonnage of coal required for generating electricity in the Northern Rhodesian Copper Belt, and in consequence the demand for coal movement northwards over the hard-pressed Rhodesia Railways—a good example of the spirit of co-operation existing between neighbouring African territories.

Overseas Railway Traffics

SALVADOR Railway Company receipts for November last were colones 327,000, compared with colones 258,000 the previous year; the aggregates for the five months July-November of 1956 and 1955 were respectively colones 1,031,000 and 835,000. Midland Railway of Western Australia estimated railway and road receipts for November, 1956, were £A74,831 against £A74,140 for November of the preceding year; the aggregate for the five months July-November was £A422,287, compared with £A374,906 for the corresponding period of 1955. South African Railways & Harbours weekly total railway receipts fell from £2,830,000 for the week to December 15 to £2,121,000 for that ended January 5, which, however, with the preceding week included the Christmas holiday period; during Christmas week, passenger receipts at £378,000 exceeded the 1955 figure of £363,000. Aggregate total railway receipts from April 1, 1956, amounted, as at December 29, to £103,651,000 compared with £103,084,000 as at the corresponding date in 1955, the totals under the several headings showing similarity. This is the case also with the harbours £5,703,000 on December 29, 1956, compared with a corresponding figure of £5,646,000 in 1955; on the other hand, harbour receipts for the week ended January 5, 1957, were £146,000 against £106,000 a year previously—which doubtless reflects diversion of shipping via the Cape.

Lille International Trade Fair

THE annual Lille International Trade Fair, to be held this year from May 4 to 19, including Sundays, is an excellent opportunity for British industry, and more particularly the engineering and allied industries, to display products in a locality well situated in relation to the industrial districts and major commercial centres of France and Belgium, and in easy reach of those of other countries in Western and Central Europe. The number of exhibitors

is some 3,500 every year, from about 20 countries, and visitors are of an even greater variety of nationalities. From the exhibition space already booked for next May, it is clear that British industries will be represented to an even greater extent than in previous years. Exhibits in the mechanical section will include machine and other tools, industrial trucks and trailers, ventilators, air-conditioning equipment, electric heaters, calculating machines, and electric clocks and similar products.

New Named Train for the West of England

WITH the consent of the Queen, the name "Royal Duchy" has been given to the 1.30 p.m. express of the Western Region from Paddington to Penzance, and to its counterpart, the 11 a.m. from Penzance; as with other principal expresses of the Region, the stock is painted in the chocolate-and-cream livery of the former G.W.R. In addition, the engine headboards embody the arms of the Duchy of Cornwall. Although it is undesirable to lower the prestige of named expresses by unduly adding to their number, it was a happy thought to name these well-known trains, which date back well into Great Western days, and the name chosen is particularly appropriate. On the inaugural run, last Monday, from Paddington, whence it was seen on its way by Mr. Patrick Kingsley, Secretary of the Duchy of Cornwall, the express conveyed Mr. R. F. Hanks, Chairman of the Western Area Board, Mr. K. W. C. Grand, General Manager, and Mr. S. G. Hearn, Chief Operating Superintendent of the Western Region; it was specially stopped at Saltash, the first station beyond Brunel's Royal Albert Bridge, in the county of Cornwall, where it was received by Sir John Carew Pole, Chairman of the County Council and a member of the Western Area Board, by the Mayor of Saltash, and by Mr. Douglas Marshall, M.P. for Bodmin.

Combined Rail and Air Travel

THE new through booking facilities between British Railways and the Lancashire Aircraft Corporation, referred to elsewhere in this issue, are of particular interest in that, as with the regular prewar rail/air services between London and the Continent via Gatwick Airport, passengers' pass between train and aircraft without having to use road transport. It is only some 250 yd. between the London Midland Region station of Squires Gate, near Blackpool, and Squires Gate Airport. As flying time is only 30 min., the new service provides a very quick journey time between many places in England and in the Isle of Man; but its usefulness must depend very largely on the quality of the train service, and on its punctuality at peak holiday periods. It is encouraging that use is being made of the two modes of transport in a way which enables the passenger to make the best of both. We look forward to seeing other services of like nature if, as is probable, the venture succeeds.

Urgent Need for a Transport Museum

UNTIL British Railways are paying their way, any considerable expenditure on preservation of relics would probably be interpreted by hostile critics as extravagance. This consideration probably has been one reason for the delay on the part of the British Transport Commission in establishing in the South of England a transport museum to relieve the Railway Museum at York, already far too small. At present, transport equipment of all kinds, and of great technical—and, eventually, historical—interest, is being withdrawn from service and in danger of loss or destruction through lack of storage space, and there is undoubtedly a duty to posterity, especially in Britain, the cradle of railways. The Brighton Locomotive Works, now slowly closing down and to be vacant by the end of 1958, are an excellent site for a transport museum; they are easily accessible from London, and locomotive exhibits could run under their own power on the little-used Kemp Town branch. One can only hope that the opportunity will be taken to use the site for an obvious and pressing

purpose, and that it will not be made over to other purposes, such as the manufacture of motorcars, which is reported to be under consideration.

Dark Smoke from Railways

CERTAIN provisions of the Clean Air Act, 1956, came into force on December 31, 1956, giving local authorities power to establish smoke control areas in which smoke from buildings must be greatly reduced or must cease altogether. For the railways the establishment of these zones will have no immediate importance, but when further provisions of the Act dealing with dark smoke and emissions of grit and dust from industrial chimneys are applied, probably early next year, railways will be directly involved. For the purposes of the Act a railway locomotive will be regarded as though it were a building, and it is provided also that "the owner of any railway locomotive engine shall use any practicable means there may be for minimising the emission of smoke from the chimney on the engine and if he fails so to do, he shall, if smoke is emitted therefrom, be guilty of an offence." The position will then differ little from that under previous, and much older, legislation repealed by the new Act, but the emission of dark smoke from a locomotive will be much more noticeable in smokeless zones, and greater care will be needed not to infringe the law.

Remote Control on the Circle Line

AN article on another page describes how remote control of interlocking areas, applied by London Transport in 1955 between Farringdon and Aldersgate in connection with signalling modernisation work along that part of the Circle Line, has been extended to cover that route up to and including Liverpool Street. Equipment of the same general type has been adopted at several places on the L.T.E. lines in recent years but the present installation offers some points of special interest, including provision for automatic control of locomotive shunting movements to reduce the work of the signalman when trains are arriving at and leaving the bay lines at Moorgate and Liverpool Street. It is the necessity of handling locomotive movements that so greatly increases the number of operations needed with the more ordinary types of equipment at many places. The remote controls are of the direct type using individual circuits but a special fine wire cable has been introduced to keep expense to a minimum and avoid having recourse to the more elaborate apparatus necessary with coded controls.

Freight Train Punctuality

THE December, 1956, issue of *British Transport Review* includes the first of a new series of articles entitled "Keeping Trains to Time." In this first article, Mr. L. W. Ibbotson, Assistant to Chief Operating Superintendent, Western Region, deals with freight train punctuality. Later articles will discuss passenger services and the problems associated with engineering works in connection with electrification and modernisation. The series is prompted by the decision of the British Transport Commission to award, in the near future, trophies to the Region or Regions showing the greatest improvement in punctuality each year compared with the results for the year before.

Punctuality of trains, Mr. Ibbotson points out, is in no way a criterion of speed or efficiency, but merely an adherence to appointed times. If, however, timetables are planned to produce optimum performance, punctuality may be considered synonymous with efficiency. Only too frequently, he considers, timetables have been built up to meet a public demand and have been idealistic rather than practical. The standard of schedules should be high, but not impossible of normal achievement. Consistently unpunctual working, he insists, is the result not of inefficient operation but of either bad planning or inadequate physical assets, or sometimes of both. Because the main line freight timetable has to fit in with that of passenger services and also to work to concentrated departure and

arrival times it tends to be less flexible than the passenger train timetable. The demand for freight transport, in general, arises after the close of the working day and arrivals are required in the early morning so that goods can be distributed, often by other trains. The presence of parcels and mail trains on the lines at night makes it impossible to start the trunk freight movement of all traffic as soon as it is ready and the attempt to do so is one of the major causes of unpunctuality and inefficient use of engines and train crews. This problem will be accentuated when diesel and electric locomotives are brought into use, and to keep them working it will be necessary to run freight trains on the main lines at regular intervals throughout the 24 hr. This, he feels, with the fitting of the vacuum brake to all trains, will materially assist punctuality and make for better working in marshalling yards and locomotive depots.

The first requirement is a detailed analysis of traffic to be carried. This may well show, as Mr. Ibbotson suggests, that the present train timings are not the best for their purpose. As he shows, there may be a case for more than one train from a marshalling yard to a given destination. Where this is uneconomic, it may be better to delay the one train until all traffic for it has been collected—if necessary, until the following morning. Where traffic justifies the extension of the present afternoon-departure system for trains which have to reach a distant point by the next morning, this should be done. Such an extension would be in the interests of train working and punctuality. The principle of equally-spaced freight trains, important as it is, should be interpreted in the light of local requirements.

The importance of providing paths in the timetables for special trains to meet known requirements is stressed, but to meet the needs of trains required over and above the booked service, it is recommended that no main line should be booked to more than 75 per cent of its capacity. It is for the train control organisation to ensure that the number of trains on a line does not exceed its capacity. Line capacity is closely related to train speeds, and he proposes that, even when trains are fully-fitted, two speeds should be maintained. Fast freight trains, carrying general goods and perishable traffic, should run at an average of 45 m.p.h., with a maximum of 60 m.p.h., and heavy trains carrying mineral traffic, and so on, should average 40 m.p.h. over suitable sections of the line. These speeds, particularly for the fast trains, are probably rather slower than many would have expected, but it is important to remember that average, rather than maximum speeds are under discussion. As the article points out, certain wagons and types of traffic are subject to severe speed restrictions. Even to maintain an average of 40 m.p.h., for example, almost the whole of the tank-wagon fleet—largely in private ownership—must be rebuilt. The slow freight train will have to be retained until all such restrictions have been removed. Trains of the "pick-up" type, which spend more time in shunting than running, might better be worked loose-coupled than under fully vacuum-braked conditions. These trains can cause heavy delays to main line trains and any concentration of traffic at railheads would be welcome as reducing the need for such trains.

The widespread use of fully-fitted freight trains transfers the emphasis from the ability of a locomotive to stop a train to its ability to haul the load at the required speed. The load of heavier trains, Mr. Ibbotson considers, could be increased from 60 loaded 12-ton wagons (1,050 tons) to 50 21-ton wagons (1,420 tons). The heavier trains would present no problems as to length, but would demand a much higher standard of locomotive performance than is now available. The reduction in the number of trains thus obtained would ease line occupation and improve punctuality. Modernised signalling has its part to play, and the justification for its installation rests largely on the increased track capacity and quicker train movement which it provides. Preference in installation should be given to those focal points which exercise a restrictive effect on the line as a whole. Failures of equipment also have a considerable effect on punctuality and are increas-

ing. A special record of wagon failures in the Western Region for four weeks in the late summer of 1955 showed that 2,119 wagons were detached from 1,490 trains, or some 3 per cent of the total number run. Locomotive and signal equipment failures can also cause heavy cumulative delays to trains.

Although, in theory, the best line occupation is obtained by grouping trains of similar speeds, in practice the spacing out of both passenger and freight trains generally gives the best operating results and the best punctuality. There must, however, be a margin of line capacity to reduce to the minimum delays to freight trains caused by special passenger trains. Mr. Ibbotson concludes that the degree of punctuality attained is directly proportionate to the facilities provided. If a line is booked almost to capacity, punctuality will inevitably be bad. There must be a sufficient margin of capacity to meet ordinary needs with some reserve in hand, and the timetable plan should allow the best use to be made of available capacity by spacing trains as evenly as possible over the whole 24 hr. The factual survey of traffic needs advocated by Mr. Ibbotson, together with a realistic appreciation of the capabilities of the new forms of motive power soon to come into use, should enable new timetables to be drawn up which will combine optimum use of expensive equipment with satisfaction to the consignors and consignees of freight traffic.

Passenger Problems in the U.S.A.

WHILST the many railway companies in the U.S.A. which do not derive more than 10 or 15 per cent of their revenues from passenger traffic are, in the words of an American correspondent with considerable experience of railway management in that country, "doing quite nicely," the position is very different with the larger railroads and others which operate an extensive passenger service, and more particularly those like the New York Central, Pennsylvania, New Haven, Atlantic Coast Line, Chicago & North Western, and some others which, although the amount of long-distance passengers they carry is relatively small, are burdened with the obligation to maintain local and suburban services.

Passenger service losses are the cause of the greatest concern to the American railways. The ever-growing system of arterial roads and the constantly increasing number of motorcars has made very serious inroads upon passenger travel by rail; this, however, is something which railway managements must accept. The airlines now convey as many passengers, exclusive of local and season-ticket traffic, as the railways, which means that they carry many more passengers than travel by rail in Pullman and parlour cars. The air undertakings moreover are indirectly subsidised, in that they make no investment in airports, which are provided from Federal and municipal funds, and that the Government operates the airway system at no cost to the airlines, so that their only investment is in aircraft and servicing facilities. Many airlines receive direct subsidies from the Federal Government, so that the railways, which have to pay their own way, are forced to compete with subsidised competitors. This has now become a grave problem for lines which in years past enjoyed a heavy passenger traffic, equipped themselves with facilities to move it, and now have an excess of capacity, with large and extensive terminals on which the taxes are very burdensome.

As in Britain and other countries, the railways in the U.S.A. have great difficulty in obtaining authority to discontinue unremunerative passenger services, however poorly patronised. Our correspondent cannot recollect one State that has a Public Service Commission that is "reasonable with respect to the discontinuance of passenger train services. It is something that must be fought for constantly and with many setbacks." Attempts are being made to secure passage of a new law that would permit the railways to appeal directly to the Interstate Commerce Commission from adverse decisions or inaction of State Commissions because in the final analysis it is the Interstate

Commerce Commission and not the State Commissions that have responsibility for the economic welfare of the railroad industry. Such a law naturally meets the combined opposition of all State Commissions and it is difficult to be optimistic as to the prospects of its enactment. Elimination of practically all steam locomotives is likely within the next five years. The enormous investment involved in conversion to diesel traction has in some cases caused fewer freight vehicles to be purchased and smaller fleets to be maintained. The railways, which need the freight business badly, have suffered from a shortage of rolling stock almost constantly since the war.

For example, the New York Central is stated to have allowed its wagon fleet to drop from 140,000 to 117,000 and it is not yet fully converted to diesel working. The total ownership of freight vehicles by all U.S.A. railways is in the neighbourhood of 1,750,000: the total need is 2,000,000; some 500,000 will be withdrawn from service within the next five years. The problem, therefore, is the necessity of replacing those 500,000 and adding another 250,000, or a total of 750,000 new wagons in about five years. This goal is unlikely to be attained, because the cost of vehicles has risen greatly and money borrowed for equipment purchases is again costing between 4 and 5 per cent, depending on the credit of the railway company that is borrowing. The American railways financed the purchase of a great deal of equipment at interest rates under 3 per cent in the 15-year period beginning in 1941, so that the present rates seem very burdensome. In this case also it is the large railways burdened with passenger service losses that do not possess enough vehicles for freight traffic.

Metal Corrosion a National Problem

METALLIC corrosion is costing the United Kingdom about £600,000,000 annually, and without prejudice to existing research centres a Corrosion Research Station on a national basis should be set up to tackle the problem. This view was expressed at a recent meeting of the Institution of Civil Engineers by Dr. W. H. J. Vernon, formerly Lecturer in Metallurgy at the Birmingham College of Technology, now a consultant on metallic corrosion. On the subject of metallic corrosion and conservation, he points out that this sum represents only the probable cost of maintenance of metal installations, plus the cost of the equipment which corrosion makes unserviceable every year. The indirect costs of breakdowns in industry from items such as a perforation in a tube in a power station condenser caused by corrosion, are incalculable; he suggests that the "corrosionist" should become in Britain as normal a member of industrial technical personnel as he is in the U.S.A.

Among all the errors of design—and there are many—one of the most common is still that of coupling together dissimilar metals or alloys, without regard to their nature, or to the consequences that may follow when the assembly goes into service, when bearing in mind the way in which the juxtaposition of certain metals will accelerate the corrosion of one of them. Greater attention should be paid to the costs of corrosion control, Dr. Vernon urges; and an increasing aggregate cost is a healthy trend so long as it reduces the total costs of corrosion both direct and indirect. In painting surfaces suitable care at the start can make significant reductions in cost by lengthening the intervals between repainting.

Combating corrosion by a system of electric currents known as cathodic protection, he considers, is one of the most promising fields for development. Not only can it prevent corrosion when installed from the start, but he cites a case where, in bitumen-coated steel water pipes where leaks had developed, it was found to suppress these. In the seven previous years, there had been 25 leaks, each of which had cost about £500 to repair, including the cost of interruption of operations, while it would have cost between £60,000 and £70,000 to replace the pipes. Cathodic protection was installed at a cost of £2,800 and protection, it is claimed, is now assured for a running cost of £60 a year.

Colonel Wilson's Annual Report

THE report for the year 1955 of the Chief Inspecting Officer of Railways, Lt.-Colonel G. R. S. Wilson, shows a decline in the number of "train" accidents compared with 1954 from 1,197 to 1,156 but that unfortunately the good record of the latter year in the matter of fatalities was not maintained. In 1954, not a single passenger lost his life in such an accident, and only one railwayman, but 1955 opened badly with the high-speed derailment at Sutton Coldfield, with its heavy casualty list, and although for some time there was comparative freedom from serious incidents, in November and December came another bad derailment at Milton, near Didcot, and a collision and fire at Barnes, a sequence which, the report observes, "gave rise to public concern." Fears were felt that "there had been a sudden deterioration in the safety of rail travel in this country for some basic reason which was not immediately clear" but the relevant inquiries found the only cause common to all to be "failure in varying degrees of the human element, as indeed in the great majority of railway accidents."

No better illustration of the fortuitous nature of the circumstances and conditions which affect these matters could be found than in the fact that in 1955 train accidents were fewer by 3.4 per cent than in 1954 but the consequences quite different. The number of

such as snow, landslides and floods, but misconduct of the public was responsible for 227 accidents, including 48 collisions with vehicles at level crossings in which seven persons met their deaths. There were again some fires in trains, 118 in all, mainly caused by sparks from steam engines, although several were due to misconduct of the public, and mishaps caused by open carriage doors fouling other vehicles and structures. Total "route" mileage open was 19,378, a reduction of 67, but electric "track" mileage remained unaltered during the year at 3,138. Staff employed was again lower at 585,641, a decrease of 14,271, due mainly to more economical use of manpower. There is still however, considerable difficulty in recruiting and retaining men for the track and signalling maintenance staffs and other working grades, particularly in industrial areas.

There was practically no alteration in the number of passenger journeys, which amounted to 1,543 million, but freight tonnage declined by 3.1 per cent and total main-line train mileage by nearly 4 per cent.

Of the 38 collisions and derailments for which signalmen were responsible 11 were due to irregular block working, a little below the average of the last few years, the most serious instance being the mistaken use or the releasing key with the Sykes lock-and-block which brought about the disastrous collision at Barnes and the next the slack conduct of the signalman in the Hellfield case. There

TRAIN ACCIDENTS: PRIMARY CAUSES

	Collisions	Derailments	Running into obstructions	Fires in trains	Miscellaneous	Total
1. Failure of train crews (including guards):—						
(a) Passing signals at danger	24	10	19	—	—	53
(b) Other irregularities or want of care	127	43	46	—	4	220
2. Failure of signalmen:—						
(a) Irregular block working	10	1	—	—	—	11
(b) Other irregularities or want of care	10	17	10	—	—	37
3. Failure of other operating staff	46	10	106	3	2	167
4. Failure of train crews and/or signalmen and/or other staff	39	10	24	—	1	74
5. Faulty loading	7	7	5	1	1	21
6. Technical defects:—						
(a) Engines	1	10	—	7	1	19
(b) Vehicles:—						
(i) Drawgear	3	6	—	—	—	9
(ii) Other	8	42	2	14	3	69
(c) Track or signalling apparatus	5	28	3	—	—	37
(d) Defective structures (other)	—	—	3	1	2	6
7. Other causes:—						
(a) Snow, landslides, floods	—	3	12	—	—	15
(b) Animals on the line	—	—	75	—	—	75
(c) Misconduct of the public	100	3	97	17	10	227
(d) Miscellaneous	12	15	10	74	5	116
Total	392	205	412	118	29	1,156

persons injured in such accidents amounted to 916 against 614 in the previous year. The 40 passenger fatalities occurred in six of them, of which three alone accounted for 36. There were 202 such accidents at level crossings against 193 in 1954 of which 140 were collisions with gates standing across the line and 62 collisions with road vehicles; 18 of these were at public and 44 at occupation crossings. In two cases it was necessary to hold a formal inquiry. There are 4,505 crossings over public roads, at 249 of which no gates exist, mostly on light railways or lines of light traffic, on which severe speed restrictions apply. Occupation crossings number 21,311. Although these accidents, especially those occurring at occupation crossings, are a matter of concern, it is satisfactory to read that "there has been no increasing trend in their number" over the 10 postwar years, "despite the continual growth of motor transport."

Analysis of the train accidents shows that failure on the part of operating staff was responsible for 50.4 per cent, a little more than in 1954, and that train crews had to answer for 151 collisions and 53 derailments, while failures on the part of signalmen led to 20 collisions and 18 derailments.

Technical defects, in many cases with human failure associated, led to 140 accidents, including 17 collisions and 86 derailments. The better winter weather conditions brought down markedly the total of accidents due to other causes,

were some cases of men failing to observe that freight trains had passed incomplete. Failure of ground operating staff accounted for 56 collisions and derailments, and in addition there were instances of accidents occasioned by faulty loading of goods. Projecting or falling loads constitute a great risk to all classes of traffic and seven derailments were caused thereby during 1955. Although the accidents due to failure of train crews have remained fairly steady in number of recent years there were several serious examples in 1955 among the total of 204 collisions and derailments thus originated. The Sutton Coldfield disaster arose from an extraordinary lapse on the part of an experienced driver, bearing an excellent record, but the derailment at Wormit came into a different category, being caused by reckless driving. Another derailment at a, for the time being, facing crossover during single-line working arose from disregard of plain rules by the driver, which the guard in any case should have acted to prevent.

There were 53 instances of disobedience to signals, a figure below the averages of the preceding 10 years. Of these 12 might have been prevented by a warning type A.T.C. The Milton derailment was one of the rare failures of a driver to respond to such a warning. Service trials of the British Railways standard system were continued during the year and the provisional approval previously given by the Minister of Transport & Civil Aviation was followed by his definitely sanctioning, on advice tendered

to him by Colonel Wilson after the completion of the present report, the general installation of the equipment. It has been developed for use with the vacuum brake but the necessary modifications to enable it to work with the Westinghouse are being arranged.

FORMAL INQUIRIES

It was necessary to hold 18 formal inquiries into train accidents, 10 more than in 1954, and the report gives as usual a concise account of the essential facts involved in each instance. As the individual reports relating to them were summarised in our pages and illustrated by diagrams soon after they were published, no extended reference to them is here required, beyond a few remarks on the more serious ones. The Sutton Coldfield case (January 23) was one of the very few that have occurred in Great Britain attributable solely to excessive speed over a curve, far too great to be accounted for by mere misjudgment, and raised the question of the general provision of lineside speed limiting warning notices, which had in fact been considered but decided against on economic grounds in 1949; it was recommended that the British Transport Commission should again investigate it. The Milton derailment (November 20) involved, in addition to the general ques-

tion of A.T.C., that of the view of the signals from a "Britannia" class locomotive, which in accordance with today's agreed standards has left-hand drive whereas all the engines coming from the time of the former G.W.R. have right-hand, which of course influenced the placing of many signals on that line. View of them in this instance was not easy from the engine concerned while the lookout was somewhat interfered with by items of equipment and it was recommended that improvements be made in this respect. The rules governing trains entering goods loops under diversion instructions also were thought to need reconsideration. Had the driver had a visual indicator, as in the British Railways A.T.C. system, reminding him that he had cancelled a warning at the distant signal, his lapse might have been prevented and the addition of something of the kind to the old G.W.R. equipment was recommended. An unusual accident on electrified lines was the one at Bromley-by-Bow (December 1) when a traffic stoppage caused by a failure some distance ahead led to a crowded train being detained in a fog at a signal for an excessively long time. The current had been cut off and the air brakes became exhausted. In moving the train forward under hand brakes to detrain passengers at a platform a misjudgment occurred and it

CASUALTIES IN TRAIN AND MOVEMENT ACCIDENTS

	Total	Killed				Injured				All casualties per million train miles	
		Total	Passengers	Railway servants	Other persons	Total	Passengers	Railway servants	Other persons	Killed	Injured
1915-1919	6,122	616	174	341	101	5,506	1,731	3,600	175	1.8	16.5
1920-1924	6,638	407	92	248	67	6,231	2,577	3,518	136	1.1	17.0
1925-1929	7,526	368	91	210	67	7,158	3,733	3,267	158	0.9	18.0
1930-1934	7,440	308	74	183	51	7,132	4,394	2,592	146	0.7	17.0
1935-1939	8,376	338	86	198	54	8,038	5,342	2,576	120	0.8	18.0
1940-1945	1,222*	477	141	254	82	745*	256*	455*	34*	1.2	1.9*
1946-1950	8,878	347	91	204	52	8,531	5,647	2,763	121	0.9	21.2
1946	9,529	413	120	236	57	9,116	5,691	3,281	144	1.0	22.6
1947	9,203	409	148	218	43	8,794	5,871	2,785	138	1.1	22.9
1948	8,683	340	87	191	62	8,343	5,554	2,678	111	0.9	20.9
1949	8,651	285	44	188	53	8,366	5,640	2,625	101	0.7	20.2
1950	8,329	290	60	187	43	8,039	5,483	2,446	110	0.7	19.5
1951	8,176	283	97	158	28	7,893	5,328	2,482	83	0.7	19.2
1952	8,470	386	160	180	46	8,084	5,505	2,472	107	0.9	19.7
1953	7,771	306	66	185	55	7,465	5,051	2,304	110	0.7	18.0
1954	7,558	211	40	139	32	7,347	5,029	2,229	89	0.5	17.8
1955	7,573	288	89	162	37	7,285	5,083	2,089	113	0.7	18.3

* Serious injuries only

ACCIDENTS, EMPLOYMENT, AND OPERATING STATISTICS

	Class I		Railway servants (March)	Passenger journeys originating (incl. season tickets)			Freight-tonnage originating (excl. free hauled)	Ton-miles (incl. free hauled)	Miles operated				Passenger-miles (estimated)	
	Train accidents	Failures of rolling stock or permanent way		Total	Main line railways	London Transport			Main line railways			London Transport: Train	Main-line railways	London Transport
									Train	Shunting	Other			
Number		Thousands	Millions											
1920-1924 ..	1,009	11,153	699 ^a	1,848	—	—	303	17,457	369	121	28	—	—	—
1925-1929 ..	941	9,141	679	1,661	—	—	298	17,562	401	123	29	—	—	—
1930-1934 ..	796	7,772	602	1,612	—	—	270	16,060	416	113	27	—	—	—
1935-1939 ^a ..	745	4,149	592	1,733 ^a	1,255 ^a	478 ^a	281	17,230 ^a	412	115	29	32	18,993 ^a	2,297 ^a
1940-1945 ^a ..	387	160	604	1,661	1,210	451	288	23,844 ^a	356	124	37	26 ^a	33,191 ^a	2,608 ^a
1946	1,237	5,162	652	1,855	1,266	589	262	20,639	373	116	36	30	29,231	3,029
1947	1,388	4,679	660	1,714	1,140	574	257	20,190	355	113	35	31	23,015	3,095
1948	1,293	4,398	703	1,646	996	650	276	21,502	366	112	41	34	—	25,093
1949	1,176	4,062	648 ^a	1,634	993	641	280	22,010	381	109	41	34	—	24,958
1950	1,156	3,609	628	1,613	982	631	281	22,135	384	105	40	34	—	23,898
1951	1,280	3,436	622	1,624	1,001	623	285	22,902	376	104	40	35	—	24,302
1952	1,243	3,022	625	1,574	989	585	285	22,391	376	101	40	35	—	24,048
1953	1,123	2,675	616	1,565	985	580	289	22,766	379	100	40	34	—	24,143
1954	1,197	2,504	600	1,566	991	575	283	22,089	378	97	40	34	—	24,235
1955	1,156	2,080	586	1,543	967	576	274	21,353	363	92	38	35	—	23,777

^a Having regard to the altered basis under the Modification Order, fewer accidents were reportable and only serious damage is included as from September 1, 1939, to December 31, 1945. The comparison is unchanged as regards traffic, movement and staff employed.

^a Four years, 1921-1924

^a Four years, 1935-1938

^a For year ended August, 1939, only

^a Estimate for main lines—1942-1945

^a Loaded only

^a Three years, 1943-1945

^a Railways and London Transport Executive's Staff only

collided with another, already emptied. Some inadequacy of telephone facilities for dealing with such emergencies was referred to in the report—the railway authorities were aware of them—and the provision of improved apparatus and the revision of procedure for dealing with such cases at once taken in hand. The Barnes collision (December 2) between an electric train and a freight under irregular clear signals raised several issues, as the course of events was influenced for the worse by several regrettable misunderstandings during the transmission of messages, not only among railway staff but among the servants of certain outside services, rendering the inquiry specially difficult. The fatal blunder committed by the Barnes signalman had been prompted by premature receipt of an "is line clear?" signal, which raised the whole question of the methods of working the Sykes apparatus on the various sections of the Southern Region, themselves an inheritance from the days of the old pre-grouping companies. Changes in this respect were recommended and agreed to, together with the provision of certain other improvements, such as berth track circuits, pending the installing of continuous track circuiting and colour-light signalling. The fire that followed the collision was started by arcing when a coach turned over on the third-rail and current was not cut off for several minutes. Modern type electrical supply arrangements will render such conditions extremely unlikely in future and the general adoption of steel rolling stock, being pressed forward as rapidly as circumstances permit, will enormously reduce any fire risk, so that no recommendations on these points was held to be necessary.

The report also gives particulars of a number of other accidents dealt with by correspondence with the railway authorities without formal investigation, disclosing a variety of operating faults committed by different grades from all of which some lesson may be learned. There was no serious derailment attributable to defective track in the ordinary sense, but one or two were caused by insufficient care being exercised during certain maintenance operations.

EQUIPMENT, RAILS, AND STRUCTURES

These failures totalled 2,080, or 424 fewer than in 1954, and there was again a gratifying substantial decline from 1,813 to 1,606 in coupling failures on both goods and passenger trains. The average for the five years 1951-1955 was 2,158, the progressive improvement being due mainly to steady replacement of old and obsolete vehicles. Failures of engine machinery, springs, etc., continued at much the same level as before and included another case, though arising differently, of breakage of coupling rods on an express engine at speed; as a result the coupled axle boxes in the class concerned are now being renewed at every main workshop repair. There were two interesting cases of failures of axles on electric trains, leading to derailment, the result of fatigue cracks not detected by ultrasonic testing, which in general gives extremely good results. No case of bursting of boilers or tubes, etc., was recorded during the year. Track and structural failures fell from 265 in 1954, when there were some exceptional floods, to 80, and broken rails were fewer by 43 at 278, reflecting again the steady improvement recorded since 1951 consequent on better maintenance, renewal and strengthening of the permanent way.

The great value of continuous brakes to be extended to freight stock under the modernisation plan, was illustrated by the fact that no collision or derailment resulted from the division of a passenger train.

LEVEL CROSSINGS

Total casualties at crossings came to 30 killed and 59 injured; of the former, nine were occupants of road vehicles. Speaking of the cases due to negligence of gatekeepers, the report draws attention to the possibility of using lifting barriers controlled automatically by track circuit. Attendance costs are "disproportionately high" at many crossings and the possibility of using remotely con-

trolled barriers is being "examined by the British Transport Commission in consultation with the Inspecting Officers of Railways and the Highways Engineers of the Ministry of Transport & Civil Aviation." Practice on the Continent is being specially studied. The only way at present to prevent accidents at occupation crossings, says the report, is the "exercise of the greatest care by road users of all classes. . . ." The erection of arresting notices at the busier crossings was recommended in the report on a fatal accident at Fernhill Farm crossing. At ordinary interlocked gated crossings where there is a signalbox, risks to road users is, of course, practically nil.

ACCIDENTS TO SERVANTS

Accidents to servants arising from the movement of vehicles, as distinct from train accidents proper, resulted in the deaths of 154 and injuries to 1,998, the total figure of 2,152 being again the lowest recorded. All accidents to staff working on the line, through being struck by trains, were inquired into. There was a rise in the cases where men were aware of the approach of a train but acted incorrectly. All were fully reviewed at the site and none could be attributed to lack of independent protection. These accidents were due to failure to observe the plain Rule 234(a) relative to moving clear of all tracks unless it can be seen distinctly that no harm can come by doing otherwise and then being satisfied that it is safe to recross before attempting to resume work. In the case of accidents to staff walking or standing on the line, with few exceptions the men had failed to observe simple common-sense rules and instructions. Mishaps occurring during shunting in most cases also were the consequence of failing to comply with simple rules or of taking unnecessary risks. Men still were found going between vehicles to couple by hand before they had stopped or using, contrary to rule, a shunting pole as a lever to apply or release wagon brakes instead of the proper brake stick provided. The more serious of accidents occurring on engines in motion arose from flames blowing back on mismanagement of the blower, and in one case, a man jumping off to avoid them lost his life.

Nevertheless, there was real progress accomplished in the reduction of these regrettable incidents and Colonel Wilson hopes the result will "encourage all concerned in their continued endeavours . . ." to this end and mentions that "an inter-Regional study group has now been appointed to advise and assist General Managers" in the work of "bringing home to the staff the lessons to be learned from typical accidents. . . ." He has himself had discussions with the National Union of Railwaymen and the British Transport Commission on the question of lookout men which is receiving the Commission's close attention, having regard to the changed conditions produced by extension of electrification and automatic signalling. It is always impressed on the men that their own safety must be the first consideration. Gangers and others in charge will never be criticised for depleting the working strength by appointment of a lookout, nor for delay arising when none is available but protection is held by them to be necessary.

Pointing out that total fatalities due to all movement on rail amounted to 0.7 per million train miles and that the number of passenger journeys for each passenger fatality came to 38 million, Colonel Wilson stresses that "the risk in railway travel thus remains very small but all are agreed that it should be reduced. . . ." With that object the Minister of Transport & Civil Aviation discussed the question personally with the British Transport Commission and the trade unions and shortly after it was dealt with by the British Transport Joint Consultative Council. "These frank discussions have proved very beneficial towards the co-operation of all concerned at all levels in the matter of discipline in operation and maintenance," says the report, which concludes with the hope that this "will continue undiminished because conscientious attention to duty in all its forms, including implicit obedience to the rules and regulations, is the most important single factor in safety on the railways."

Railway Operations in Autumn, 1956

(By a correspondent)

ON January 14, operating results for British Railways during the 12 weeks from September 10 to December 2, were published in No. 12 of *Transport Statistics* (1956 series). The figures relating to freight train traffic do not make cheerful reading. Our railways originated 67,188,000 tons, a decrease of 2,429,000 tons, or 3·4 per cent, from the corresponding 12 weeks of 1955. Only 10,358,000 tons of merchandise were put on rail, a fall of 450,000 tons, or 4·1 per cent. The tonnage of minerals also decreased by 544,000, or 3·2 per cent, to 15,981,000. Coal and coke alone produced an increase of 1,454,000, or 3·7 per cent, to total forwardings of 40,659,000 tons.

Over the 48 weeks of last year to December 2, British Railways lost no less than 1,123,000 tons of merchandise, or 2·8 per cent, but carried 1,636,000 more tons of minerals (2·8 per cent) and 1,318,000 more tons of coal and coke (0·9 per cent). A decline in mineral traffic occurred in the months of September, October, and November when the production of steel and pig-iron was climbing steadily to record heights. In contrast, the output of coal varied erratically from week to week and, despite an improvement towards the end of the year, the total of 222 million tons produced was nearly 8 per cent below the 241 million tons raised in 1937, the last good year before the war for the coal-mining industry and former railway companies.

OPERATING STATISTICS

In the 12 weeks to December 2 the average length of haul shortened by three-quarters of a mile, so that ton miles decreased in a higher proportion than originating tons. British Railways worked 5,192,532,000 ton miles, a decrease of 242,242,000, or 4·4 per cent from 1955. They were able to reduce freight train miles by 814,000 (2·4 per cent) to 32,433,000. Train engine hours dropped by 194,000 (5·2 per cent) to 3,552,000. The London Midland Region made large cuts of 410,000 in freight train miles (4 per cent) and 100,000 in train hours (7·6 per cent). Over the whole system 140,000 fewer shunting engine hours were worked. This saving of 3·7 per cent was spread over all Regions.

As generally happens in a time of decreasing traffic volume, the all-line train load fell from 163 to 160 tons (2 per cent) and the speed of freight trains rose from 8·87 miles an hour to 9·12. The Eastern Region raised its train load slightly to 181·6 tons and moved it at a somewhat higher speed of 9·26 miles an hour. For the first time the Eastern Region load was heavier than the London Midland Region average of 178·7 tons, which was nearly 5 tons less than in 1955. The North Eastern maintained its load of about 158 tons, moved at a somewhat slower rate of 10·53 m.p.h.

A crucial test of freight train operation is the hourly output of net ton miles, which combines loading and movement factors. The North Eastern always has the largest output, though in 12 weeks to December 2 its figure of 1,453 was 19 points behind 1955, compared with the Eastern Region advance of 29 points to a total of 1,426. Both results were far above the all-line output of 1,202. Over 48 weeks to December 2, the North Eastern overshadowed all results elsewhere by working 1,480 net ton miles in a train hour. During the same period the North Eastern was singular in forwarding more loaded wagons than in 1955 with an average load at starting point of 11·2 tons against a general average of 9·4 tons. Clearly the Area still possesses some of the individual characteristics of the old North Eastern Railway.

FREIGHT ROLLING STOCK

On December 2, British Railways had a stock of 1,119,160 freight vehicles. The number under repair was 63,542, about 5·6 per cent of the stock. That was a marked improvement on the state of wagon repairs at December 4, 1955, when 82,242 vehicles were unserviceable, making the under-repair percentage 7·3. At last there is a prospect of this percentage falling to the level of 5·5

per cent which the Railway Executive expected to achieve by the end of 1949. The U.S.A. Class 1 railways have set a good example by clearing off arrears of maintenance which accumulated in the slack year 1954. On December 1 they had only 68,105 wagons unserviceable, roughly 4 per cent of their stock of 1,704,940 large wagons with an average capacity of 54 short tons.

The locomotive position on our railways is less satisfactory. On December 2 they had a stock of 18,186 locomotives. Steam locomotives numbered 17,523, a decrease of 436 since a comparable date in 1955. No fewer than 2,836, or over 16 per cent, were under repair. The stock of diesel-electric locomotives stood at 500, with 54, or 10·8 per cent under repair. Of 90 diesels (mechanical and hydraulic) 16 were unserviceable (17·7 per cent) and so were 9 of 71 electric locomotives. Altogether 2,917 locomotives, or 16 per cent of the total stock, were out of action.

They order this matter of locomotive repairs better in the U.S.A. On December 1, the Class 1 railways owned 3,820 steam locomotives, the remnants of a fleet numbering 37,550 in 1946; the number under repair was 586, or 15 per cent. Over the past 10 years the stock of diesel units rose from 4,440 to 216,130, but on December 1 only 856, or 3·2 per cent, were unserviceable. Over the same period of time the number of electric units declined from 832 to 606, with 72 out of action on December 1, nearly 12 per cent. Altogether at that date 1,514 of the total stock of 30,552 locomotives were under repair, just about 5 per cent.

These figures explain why, over 12 months ended November, the U.S.A. railways installed not a single steam locomotive, but put into traffic 1,495 diesel and five electric units, which were probably replacements as main-line electrification has been brought to a standstill by the success of diesel traction. Between 1895 and 1939, 20 American railways experimented with electric traction on over 2,500 miles of line, but there is now general agreement that diesel motive power is more adaptable and economical, even if atomic energy reduces present electric costs substantially.

Letters to the Editor

(The Editor is not responsible for opinions of correspondents)

The Race to the North, 1895

January 27

SIR,—I am preparing an account of the above stirring event as a connected narrative for eventual publication in book form. I am wondering whether any of your readers who have memories of the race, or who know of persons, incidents, or other matter connected with it, would care to communicate with me.

Yours faithfully,

O. S. NOCK

20, Sion Hill, Bath

The Railway Modernisation Plan

January 25

SIR,—It seems incredible to suggest, as the Minister of Transport & Civil Aviation, Mr. Harold Watkinson, seems to have suggested, that the whole scheme might have to be dropped if the demands of the railway trades unions were not reasonable.

In the past, the workers in the road haulage and road passenger transport industries have not shown themselves as well organised as the railwaymen; but there are signs now of a change. Any plan for road highway construction to take the place of the railways could be equally jeopardised by wage demands. Continuous requests for higher pay are not a symptom peculiar to the railways; neither are they peculiar to transport.

Yours faithfully,

R. G. R. CALVERT

45, Woodways, Watford

THE SCRAP HEAP

Between Two Worlds

Only four railway lines are in permanent use between the two halves of Germany and only one main road between Berlin and the West. . . . There is, for instance, the stretch of railway line with the signal still down to show that a train is coming. But the signal has been like that for 12 years and no one has troubled to do anything about it.

Grass and shrubs are growing over the disused line, which has the misfortune to "cut" the interzonal frontier. The wooden sleepers have almost rotted away.—From *"The Manchester Guardian."*

More Exhibits for York Museum

Two additions to the York Railway Museum since departure to the Western Region of the G.W.R. 4-4-0 *City of Truro*, are the G.N.R. Ivatt *Atlantic* No. 251 and the N.E.R. Tennant 2-4-0 No. 1463. Built in 1902, No. 251 was the first of 93 large-boilered Atlantics designed by H. A. Ivatt, then Locomotive Superintendent of the Great Northern Railway, for hauling main-line passenger trains, which at that time were increasing in size, so that double-heading with smaller locomotives was often necessary.

To remedy this deficiency, Ivatt in 1898 designed and built the smaller-boilered *Atlantic*; No. 990, now preserved at York, was the first of these. The large-boilered *Atlantic* followed four years later. The main features of No. 251 compared with contemporary engines are the much larger boiler, the wide Wootten firebox, and reduction in size of the then fashionable large driving wheels.

This particular locomotive continued in service until July, 1947, and in 1953 took part in the Doncaster Plant Centenary celebrations, hauling with 990,

Henry Oakley, a special train from Kings Cross to Doncaster.

N.E.R. No. 1463, built in 1885 at Darlington, was the first of the 2-4-0s, commonly known as the "Tennant" class. In 1885, Edward Fletcher's successor as Locomotive Superintendent, Macdonnell, resigned, and pending the appointment of his successor, a Locomotive Committee was constituted with Henry Tennant, General Manager of the North Eastern Railway, as Chairman.

The "Tennant" class was similar in design to the last of Fletcher's passenger train engines, and No. 1463 was the first of 20 built to this design, and used mainly on main-line passenger trains covering what was then the longest non-stop run in the country, Newcastle to Edinburgh. No. 1463 weighs only 40 tons. The main features of interest are comparatively large cylinders, 18 in. by 24 in., and 7-ft. 1-in. dia. wheels. It was withdrawn from service in 1927 and has previously been exhibited at York. After the war, when it was decided to preserve in the Museum the N.E.R. "M.1" class No. 1621, No. 1463 had to remain in store until further space could be found.

Contempt of Parliament

The powers of the House of Commons to summon to the bar of the House for rebuke by the Speaker are boundless. In 1892 the entire board of the Cambrian Railway Company had to appear. They had dismissed an employee for giving unpalatable evidence of railway working conditions to a Parliamentary Committee, and so were guilty of contempt. Speaker Peel delivered an admonishment on that occasion which was described as one of the most awesome in the history of Parliament. The directors wilted physically under its force.—"Peterborough" in *"The Daily Telegraph."*

Early Mersey Railway Electric Stock



Multiple-unit train, 1904 series, of the former Mersey Railway (now part of the London Midland Region) still in service, pending replacement by open vehicles now building

Railway Signboard on a Waterway

In the Scrap Heap of January 11, a photograph was reproduced of an installation of railway signals to control the entry of craft into locks on the Weaver Navigation.

A correspondent in the January/February issue of *Waterways*, the staff



Photo]

[J. R. Hind

magazine of British Transport Waterways, to whom we are indebted for the accompanying illustration, points out that further application of railway signs to the waterways can be seen on the Crinan Canal, which links Loch Fyne and the Sound of Jura in Argyllshire. Swing road bridges span the canal at several places, and to save time the signboard "Whistle" reminds the captains of craft bound for the Clyde to sound their approach so that the road bridge around the corner will be opened for them. The photograph reproduced was taken near Crinan.

Vive le Sport!

(Most of the referees in France are reported to be railwaymen)

Our Paris Correspondent, in some recent observations, Gives data that will interest All Soccer-loving nations. In France, where reffing is concerned, All sorts of problems bristle And *cheminots* mostly compose The Knighthood of the Whistle.

The frenzied shouts, the wild appeals, The muttered imprecations Are gentle murmurs to the men Who run French railway stations. Accustomed to encountering those Who threaten or importune, They're armour-clad against all shafts Hurl'd by outrageous fortune.

They're fit enough, beyond all doubt, That hardly needs explaining, For, by the nature of their jobs, They're constantly en-training!

Salute these comrades *Outre-Manche*, French Railways' joy and pride, The chaps who know just when to blow And never get off-side!

A. B.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

RHODESIA

Express Goods Service to Nyasaland

When the Rhodesia Railways first introduced a twice-weekly direct truck from Salisbury to Nyasaland for the conveyance of express goods traffic to Nyasaland, it was thought that this would meet the requirements of merchants in Salisbury and Bulawayo desirous of obtaining speedy transit for certain types of merchandise. The service, however, has been so well supported that additional trucks had to be allocated to cope with the volume of traffic offering.

The existing fixed arrangement is for at least one express truck to be railed twice weekly, on Mondays and Thursdays, from Salisbury to Nyasaland, which includes traffic despatched from Bulawayo and Gwelo by a connecting service.

With effect from January 1, 1957, the twice weekly service from Salisbury to Nyasaland has been increased to a daily service, except Saturdays and Sundays, and a twice weekly direct express truck has been introduced from Bulawayo to Nyasaland. Intermediate traffic consigned under express arrangements connects with the special trucks at Salisbury and/or Bulawayo.

With effect from the same date, certain specially reduced rates apply to traffic for Nyasaland. The same claims arrangements for dealing with claims on local traffic on the Rhodesia Railways north and east of Bulawayo, which were introduced earlier last year, also apply to traffic conveyed between Rhodesia and Nyasaland by the express goods service.

NEW ZEALAND

Increased Passenger Traffic

Railway passenger traffic during the winter months of 1956 was boosted by increased football excursion traffic and the improved main line railcar services. From June 24 to September 15, the number of journeys by rail, excluding suburban and season ticket journeys, rose from 677,472 to 684,751. The receipts from this traffic rose by nearly 10 per cent, from £390,242 to £427,014, indicating a much higher proportion of long distance journeys. Suburban and season ticket journeys during those 12 weeks rose from 5,240,592 to 5,362,850.

Service Improvements at Wellington

Several improvements in services for travellers at Wellington railway station were announced recently by the Minister of Railways, Mr. J. K. McAlpine. Station hostesses have been appointed, the charge for admission to the platform before the departure of important express trains has been abolished, and a coin-in-the-slot

luggage-locker service has been introduced.

The station hostesses are responsible for assisting elderly travellers and women with children in particular, and are in attendance for the arrival and departure of express trains and railcars in order to assist those in need to find their seats on trains and railcars, or direct people arriving off incoming services. The hostess service is provided between 7 a.m. and 7.30 p.m. Between train times, the hostess assists intending passengers in obtaining information, tickets and reservations. The young women appointed have been carefully selected and trained for the work. Their training included professional instruction in elementary first-aid and baby care.

CANADA

Notices in Foreign Languages

English and French, as the official languages of Canada, have long been used side by side on the railways. The large number of immigrants and refugees, ignorant of both these languages now entering Canada has led to the Canadian National Railways providing, in the trains conveying these immigrants, warning notices in a variety of languages, as to the use of the emergency brake.

UNITED STATES

Diesel Motive Power

By the middle of 1956 the U.S.A. fleet of diesel locomotive units had grown to a total of over 25,000. By September 1, 25,837 units were at work on Class 1 railways, as compared with 4,343 steam locomotives and 601 electric. Whereas the diesel stock had increased in a year by 1,419 units, the steam total had decreased by 2,338 and the electric by 59. Of these totals, 41 diesel, 518 steam and 10 electric units were stored in serviceable condition, and 796, 721 and 69 respectively were awaiting repair at shops; most of these last figures being lower than those of September 1, 1955.

Reduced Southern Pacific Service

Authority is being sought by the Southern Pacific System from the California Public Utilities Commission for the discontinuance of a number of long-distance trains which are being run at a considerable loss due to insufficient public patronage. Among the changes the all-Pullman "Lark" and all-coach "Starlight" overnight services between San Francisco and Los Angeles would be consolidated as one train in each direction; the "Shasta Daylight" between Portland and San Francisco would run on alternate days only during the winter months; and the "City of

San Francisco" and "Overland Limited" would carry local passengers over the 89 miles between Sacramento and Oakland Pier, so making possible the withdrawal of four trains between these points. It is estimated that an annual saving of £1,000,000 could be effected in this way.

Homestake Tunnel Diversion

Homestake Tunnel, at the Continental Divide, 6,328 ft. above sea level and the highest point on the Northern Pacific main line from St. Paul to Seattle, has been by-passed by a new line 3,505 ft. long, the third to be constructed by the Northern Pacific through the Homestake Pass. The reason for the diversion has been the deterioration of the tunnel. As originally built and opened in 1890, this was 706 ft. long, with timber arch linings for a short distance at both ends and in the centre. In course of time scaling and rock falls gave trouble, and in 1908, 1923 and 1948 landslides at the two ends and a partial cave-in caused more serious difficulties. The tunnel was then shortened to 679 ft., new portals built, and more of the interior lined, but external pressure began to damage the timber linings, and by 1955 work had begun on a deviation to cut the tunnel out of the route. This has necessitated an excavation by blasting in rock to a maximum depth of 80 ft., and the new line has shortened the route by 125 ft.

ARGENTINA

Increases in Pay for Drivers

The Ministry of Labour & Social Welfare, the Argentine State Railways, and the locomotive drivers' union, La Fraternidad, have signed a wage agreement giving an increase of 34 per cent over 1954 figures.

U.S.S.R.

Atomic-Powered Locomotive

It is reported that Russian engineers have succeeded in perfecting an atomic-powered locomotive of 8,000 h.p. designed to operate on a special track of some 10-ft. gauge. The locomotive is said to weigh 300 tonnes and to be divided into two sections, one, containing the atomic reactor and boiler, being separated by thick walls from the other in which is installed the steam turbine and other equipment. It is claimed that the locomotive can operate some 600 miles on half-an-ounce of nuclear fuel, and will only need to be withdrawn from service for re-fuelling on four days a year. Studies are said to be continuing in an effort to make possible the construction of a similar locomotive for operation on the standard Russian 5-ft. gauge lines.

Remote Control on London Transport Line

Remote control of interlocking areas, in operation since 1955 between Farringdon and Aldersgate, now extends to Moorgate and Liverpool Street, with facilities for automatic control of locomotive shunting



Interior of control room in Farringdon signalbox showing control desk with telephone and train describer equipment, auxiliary control desk, and illuminated diagram

FOR some distance along the northern portion of the Circle Line of London Transport, formerly that of the Metropolitan Railway, the signalling had been in service for some years and renewals had become necessary. An article in *The Railway Gazette* for July 15, 1955, describes the work done at Aldersgate & Barbican Station when the electro-mechanical type frame was replaced by an "interlocking machine," as it is called, operated by remote control from a route button panel in the Farringdon signalbox. In the latter there was also an electro-mechanical frame, using full-size levers for operating the points and slide handles, arranged above them, for controlling the signals.

This was the first example of the application of one of these machines, later used also at Camden Town Junction, Northern Line (see our issue of December 9, 1955) and Watford Junction, Metropolitan Line. This method of working is a development of the previously used remotely-controlled power-operated lever system which had been found to meet so satisfactorily the conditions obtaining on the L.T.E. lines, put in service at a number of places, as in the important installations at Harrow-on-the-Hill, Ealing Broadway, and Wembley Park (see *The Railway Gazette* of June 25, 1948; November 28, 1952; and October 29, 1954, respectively). The two last mentioned

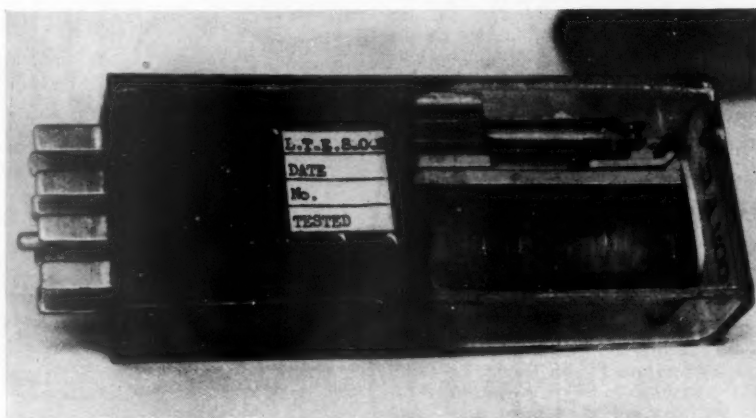
of these had push-button route controls. The "interlocking machine" contains all the essential elements of a power lever frame, including mechanical locking made up of interchangeable parts, but arranged in more compact form and it can in fact be worked by hand in case of absolute necessity. Normally, however, the elements relating to each set of points or signal control are moved by air cylinders under remote actuation by buttons on a desk panel. Route set-

ting, with pre-selecting facility, is used, and the signalman's work is reduced to making a simple gesture when authorising a train movement.

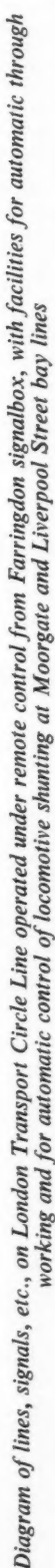
Work at Moorgate and Liverpool St.

The work at Aldersgate formed the first stage in effecting a renovation of the signalling along the Circle Line eastwards through Moorgate to Liverpool Street and in the present article the whole layout is described. It was brought into service on the night of December 15-16, 1956. The mixed form of equipment in use at Farringdon, after the alterations effected in mid-1955, where the reconstructed signalbox is now the controlling point for the entire distance mentioned, had first to be removed; to permit of this a temporary signalbox was in service for a certain time. The accompanying diagram shows the arrangement of the lines, points, signals, and so on concerned, with other items of importance.

Signal aspects are in accordance with L.T.E. standards and all stop signals have automatic train stops. Points are operated on the electro-pneumatic system, standard on these lines for all renewals and new work. For many years the layout at Liverpool Street, which involves a bay line where certain trains terminate and depart for destinations on the Harrow and Aylesbury line, had been controlled from a mechanical type frame; but this was replaced not long ago by an individual lever type power frame. At Moorgate, where what are known as the Widened Lines, over which steam services are operated by the London Midland and Eastern Regions of British Railways, end in bay platforms, a power frame has been longer in service and this and the one at Liverpool Street have been fitted for



Relay enclosed in nitrogen filled perspex case and fitted with plug connectors, used in non-safety type circuits



As traffic conditions may at times make it advisable for two men to be on duty in the Farringdon signalbox, an auxiliary control desk containing 10 buttons is provided and can be attached to the main one by plug connector and then used to control the working at Liverpool Street, so for the time being relieving the man at the main desk from having to concern himself with movements there.

This supplementary desk has train description control switches and when it has been connected to the main desk the describers for Liverpool Street cannot be operated from the latter. The restoration of a signal that has been cleared cannot be effected from the auxiliary desk; to effect this the relevant button on the main one must be pulled.

Through Movements

At times straight through working only is required on certain portions of the layout and provision is made for the signals concerned to work automatically under the control of switches mounted on a wall panel, an arrangement used of course in previous installations and simplifying the work of the signalman.

Automatic Point Working

Provision also has been made for reducing the movements to be made by the signalman by working points automatically where a fixed sequence of operations is required as in locomotive shunting. These occur at Liverpool Street in connection with trains to and from the bay road, which are hauled by electric locomotives, and at Moorgate Street, where steam trains run into and start from platforms 5 and 6.

For example, after having thrown the switch controlling automatic working at Liverpool Street the signalman actuates the button for the route from

the outer rail to the bay road, controlled by signal OD 15 (see diagram). When the train has arrived in the bay clear of track circuit "C" the route will be immediately set up for the locomotive waiting in the spur to back on. When the train is ready to depart the appropriate route button is actuated and starting signal OD 3 cleared, and as soon as the train has passed off track circuit H, on points 6 and 7, the route will be set for the locomotive which brought it in to pass out to the spur. When it is completely inside everything will revert to the normal condition. The signalman can confine his attention to train movements and ordinarily does not need to consider the shunting of the locomotives. He can, of course, switch the automatic point working in or out, as desired.

The working at Moorgate for the widened lines trains using platforms 5 and 6 is similar except that in the case of platform 6 the engine waiting in No. 1 spur has first to be brought out to the limit of shunt board clear of track circuit KD and then be signalled back to its train along the straight route, the movements being a little less simple than for platform 5, where the engine can reach its train directly out of spur No. 2.

If, after initiating automatic operation for these movements, the signalman wishes to make some alteration to one before it is completed, he can do so by putting the appropriate switch normal

and pulling the buttons controlling the signals he no longer requires to use. If, however, one has already been cleared it can be restored to danger by pulling the button, but then the locking remains held and can only be freed by resorting to the relevant emergency release.

Hand Release of Backlocks

It is necessary in certain exceptional cases to be able to release backlocks after light engines or trains under 200 ft. long have come to a stand at certain signals, to permit of which hand plungers are provided adjacent thereto, as indicated on the diagram, and must be operated by engine or train crews in accordance with special instructions.

"Thin" Multicore Cable

Provision of indications for track circuits, signals and points becomes very expensive in remote control systems if separate wires carried in the normal type of cable are used. Coded systems, as seen for example in C.T.C. type apparatus, can be resorted to for reducing the number of wires and hence the cost, but in the present installation an alternative has been introduced in the form of a special design of multicore cable containing very small conductors. A prototype length has been run between Liverpool Street and Farringdon, a distance of 1,865 yd.

By using d.c. at 100 V. for indications it is possible to work with a very small



(Left) Interlocking machine at Farringdon with mechanical locking at bottom, and operating shafts at top. The air cylinders are below the mechanical locking: (right) Interior of relay room in the Farringdon signalbox

conductor, and there is in fact practically no limit to the smallness of the wire that can be used over the distances which are met with on London Transport lines.

The special feature of the cable lies in its mechanical design, intended to prevent any fracture of the small wires. Termination is effected in a polyester resin moulding, cast on site after the cable has been laid in position, on which there are projecting terminal tags to which wires of, say, .036 gauge can be soldered. The cable has 108 cores of 0.01 in. dia. insulated with P.V.C. protected by a copper tape, which acts as the common return circuit, with an outer sheath of P.V.C. in turn protecting the whole. It is proposed to develop the design in three sizes, 61, 127, and 217 cores.

Relays used in non-safety circuits are of the P.O. 3,000 type, fitted in the

signal engineer's own shops in perspex cases, which are sealed by a resin potting process and dried in vacuum, after which they are filled with nitrogen through a small opening left for the purpose which is itself then also sealed. Sockets are provided on the case to engage with plugs on the relay racks in the signalbox. There is a similar type of relay with fewer contacts for heavy duty purposes, arranged to be operated by a.c. through a rectifier incorporated in the potting. This, however, has connecting plugs on itself engaging with a socket on the relay rack, making it impossible to place a relay among a wrong group.

Train Describers and Telephones

A very complete system of telephones connects Farringdon with the various stations, depots, etc., and, of course, the Traffic Controller. There are also

telephones at certain signals for the use of drivers or motormen detained there-at or other staff in emergency. The train describer operations have been made fully automatic for the normal course of working and cover the two Circle lines. In the ordinary way the Farringdon signalman has nothing to do with their working but can intervene to make any correction that may be required or take appropriate action should a fault develop in any receiving apparatus, made known by a visual indicator. Any train approaching undescribed is announced by an alarm and the signalman can then take steps to send the correct information ahead.

The installation was designed and installed to the directions of the Chief Civil Engineer, London Transport Executive, Mr. C. E. Dunton, by the staff of the Signal Engineer, Mr. R. Dell.

Rhodesia Railways Lorries for Ore Traffic

Specially built vehicles with side-tipping bodies



Road motor service tipping trailer for conveying lithium ore from mine to railhead at Fort Victoria. The hydraulic tipping ram can be seen in operation

multi-telescopic hydraulic ram to serve the entire fleet. The ram driven by a 5-h.p. engine, is mounted on two wheels. It is easily manoeuvred and can be operated by one person.

The offloading site is situated on an elevated concrete bank parallel to the railway siding, and the lorries or tractor units, with their articulated and independent trailers, are guided by a defined line to their position at the chute. The ram is wheeled into place, secured to a pivot on the trailer, the motor is switched on, and the offloading of a complete unit direct into the wagon below the chute is performed in 5-7 min.

An extended ledge from the chute prevents any spillage of ore, which is equally distributed in the truck. The ram is lowered simply by pressure on a lever and is easily detached from the vehicle.

It is estimated that, in labour alone this new method of offloading saves some £3,000 a year. In addition, the quick turnround of lorries has considerably increased their availability, making possible two trips a day.

THE Rhodesia Railways Road Motor Services have introduced a method of handling the considerable amount of lithium ore which is moved by road to railhead at Fort Victoria. Although the fleet of vehicles at Fort Victoria was capable of completing two 90-mile round trips between mine and railhead per day, excessive standing time during offloading invariably ruled out the second trip.

Originally, a gang of 16 men was employed offloading lorries but several vehicles often had to wait their turn to be offloaded. The best tonnage handled was 160 tons a day, but there was every indication that 500 tons a day would be offering.

When mechanisation was decided on,

consideration was first given to conventional tipping lorries and trailers with built-in tipping gear. The gear would have to travel from point to point with its parent vehicle and would be subjected to rough transit, with consequent high maintenance costs. In addition, the weight of the gear would reduce the payload of 23 tons by two tons, because of axleload restrictions.

A less costly arrangement has been devised by using a special fleet of Leyland Super Hippo six-wheel tractor units fitted with a semi-trailer and an independent trailer with side-tipping bodies, designed by the Rhodesia Railways Road Motor Services, in collaboration with the makers, J. H. Plane (Central Africa) Limited, and a

"ROYAL SCOT" DIESEL HAULED.—The "Royal Scot" expresses between Euston and Glasgow Central are now hauled by the twin diesel-electric locomotives. Nos. 10000 and 10001 take the train from Euston, returning on the 9.55 p.m. from Glasgow the same day; and Nos. 10201 and 10202 haul the 10 a.m. "Royal Scot" from Glasgow, returning on the 9.10 p.m. from Euston the same day. Thus the twin units run 802 miles daily in 16 hr. with 4 hr. servicing at destination points. The two "Royal Scot" trains pass each other daily just south of Preston. Until recently the locomotives have been working singly on trains between London and the Midlands.

Medical Cars for Indian Railways

Equipped for emergency operations in case of injuries to passengers as a result of train accidents

THE long distances from hospitals in India make the treatment of persons injured in railway accidents a different problem from that in many countries in the West, where hospital treatment is more readily available. As a result of the recommendations of the sub-committee of the medical section of the Indian Railway Conference Association a medical car has been evolved equipped to deal with emergency cases before evacuation to hospitals. The medical car is now standard on both broad and metre-gauge lines in so far as equipment is concerned. The broad-gauge medical car is 68 ft. over headstocks, and has a tare weight of 49 tons 6 cwt.

Design Features

The sub-committee consisting of the Chief Medical Officers of the Eastern, Central, and Western railways, realised that major surgical cases could not be dealt with, but that the equipment provided should be fully adequate for emergency cases. The ward compartment is 28 ft. long, and has accommodation for 18 stretcher cases; or, alternatively, six stretcher cases and seating for 36. Stretchers are arranged in three tiers of six; beds are of foam rubber, and stretchers are fitted with leather straps. Double doors are provided on each side of the car, also embarkation lights; an end door is provided for emergency use if necessary.

The ward is finished in a pastel shade of green; two toilet compartments for patients are adjacent to the ward at the end of the car. The recess under the lower berths is closed to provide

storage for blankets, and other equipment. When not in use, stretchers are stored in wall brackets provided for the purpose, while hooks are fitted for suspending blood transfusion apparatus. The ward is well ventilated and lighted; night lights also are provided.

Operating Room

The operating room is 11 ft. 6 in. long, and is connected with the ward by double doors, and also from the corridor by a single door. The room is finished in white enamel, and equipped with an adjustable operating table, 48 in. by 19½ in. with a backrest approximately 16 in. by 9 in.; the lowest position is approximately 44 in. from floor level; a detachable instrument tray is provided. Adjustment is by hand-crank mechanism.

The equipment for the operating room was supplied by the Philips Electrical Co. (India) Ltd. to the specification of the Indian Railways. The electrical equipment includes revolving and exhaust fans, and a shadowless operating lamp which operates on 24-V. supply and is specially constructed to withstand vibration and heavy shocks up to 2,000 ft. lb.

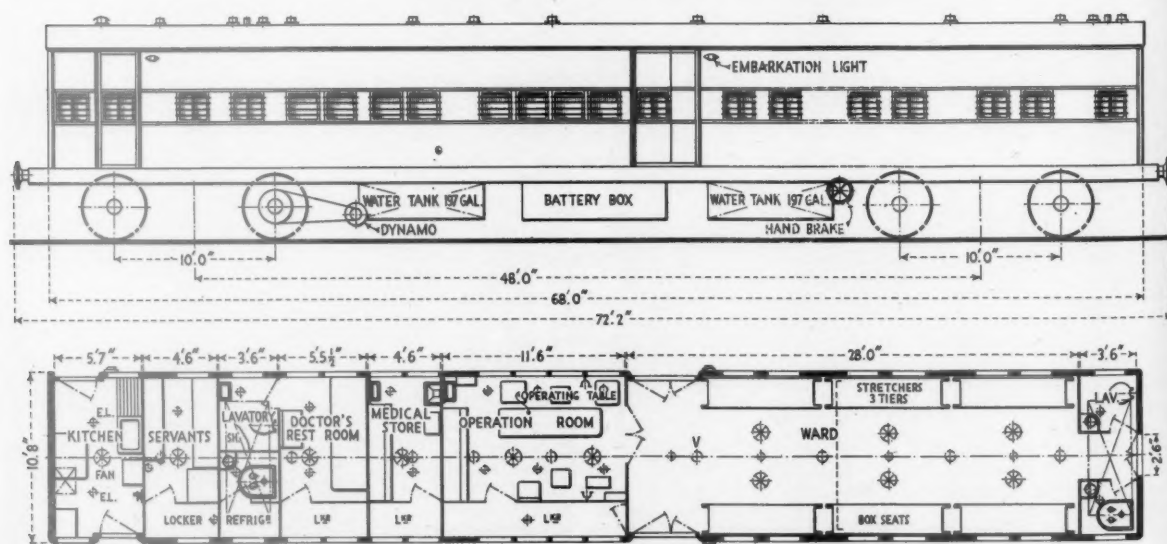
The surgical and transfusion equipment is stored in a steel cabinet having two sections, with sliding doors; the cabinet is also arranged as a worktable. The upper cabinet is used for the storage of bottles, and the lower is fitted with trays for surgical instruments. Two revolving stools, one for the doctor and anaesthetist respectively, are also included in the equipment. Fitted next to the cabinet is a washbasin with

elbow-operated faucets, and knee-action waste. The glass shutters of the cabinet are dust-proof. Brackets are fitted for oxygen cylinders.

Medical Store

The medical store is connected to the operating room by door from the corridor. As well as holding medical stores, the compartment serves as a sterilisation room. Sterilised materials are passed to the operating room through a hatch in the partition wall; a stainless-steel counter is provided. The cabinet, similar to that provided in the operating room is fitted, together with a washbasin, and a table for accommodating a stove, and a small high-power steriliser.

Adjacent to the medical store is a doctors' rest room, with bathroom attached, furnished with movable chairs, two berths, dining table, and luggage rack. The bathroom is equipped with a shower, washbasin, and so on. An attendants' compartment, with berths and other equipment, is provided, with a separate kitchen. The kitchen is fully equipped with stove, boiler, and hot water tank, for supplying hot water to all compartments. The car is fitted with an electrically-operated water raising apparatus, an emergency hand pump is also fitted. Underslung water tanks have a capacity of 394 gal. A refrigerator is fitted in the corridor recess adjacent to the attendants' room; a hand brake is fitted. The exterior of the car is furnished in gulf red enamel with the Red Cross emblem at either end of the upper panel on both sides.



Elevation and plan of medical car, showing the layout of accommodation

RAILWAY NEWS SECTION

PERSONAL

Colonel Sir Ralf B. Emerson, C.I.E., O.B.E., Chairman & General Manager, Nigerian Railway, has been elected a Member of the Institution of Civil Engineers.

Following the death of Mr. H. J. F. Gourley, President of the Institution of Civil Engineers, a special general meeting was held on January 22 to elect a new President

1940, became Civil Engineer-in-Chief, until his retirement from Government service in 1954. He was responsible to the Board of Admiralty for all civil engineering works connected with the dockyards and naval bases at home and abroad; for the extensive construction of Royal Navy air bases, armament depots, and preparations in connection with the invasion of Europe; and many other major developments. One particular wartime achievement with subsequent peace-

Mr. John Ratter, C.B.E., B.Sc., M.I.C.E., Technical Adviser, British Transport Commission, has been elected President of the Permanent Way Institution for the current year. Mr. Ratter was educated at St. Peter's School, York, and at Durham University. He began his railway career in 1929 as a pupil of the then Engineer of the North Eastern Area of the L.N.E.R., and, after holding several appointments with that company, joined the L.P.T.B. in 1936 as an



Sir Arthur Whitaker
Elected President for 1957 of the
Institution of Civil Engineers



Mr. John Ratter
Who has been elected President of the
Permanent Way Institution

for the remainder of the year. In accordance with the Institution's by-laws, the Council submitted the name of the senior Vice-President, for election by the Corporate Members on the decease of a President in Office, and Sir Arthur Whitaker, K.C.B., M.Eng., M.I.C.E., was unanimously elected. Sir Arthur Whitaker has had long experience of civil engineering. He was for many years Civil Engineer-in-Chief, Admiralty, and is now a partner in the firm of Livesey & Henderson, Consulting Engineers. He was born in 1893, and educated at Liverpool Institute High School, and at Liverpool University, where he graduated B.Eng. in 1914, with first class honours, becoming M.Eng. in 1917. In 1915 he joined the Civil Engineer-in-Chief's Department, Admiralty, at H.M. Dockyard, Rosyth, and was on the construction of that base for the remainder of 1914-18 war. Subsequently he served in Jamaica, Malta, Portsmouth and Singapore—at the latter base during the height of its construction. He returned as Deputy Civil Engineer-in-Chief, in 1934, and, in January,

ful uses was the construction of the Scapa Flow causeways. This was done after the battleship *Royal Oak* had been sunk in the harbour, by a German submarine, in 1940. The causeways closed all but three of the entrances, and the harbour was securely guarded. As a result, the inhabitants of the Orkneys can now travel between islands by bus instead of boat. His present professional activities are centred mainly in Central and South America, and West Africa, although he has been called into consultation in other parts of the world. He was created K.C.B. in 1945, and Commander, Legion of Honour, in 1947. Because of his knowledge of maritime works, he was invited to become a member of the International Consultative Works Committee of the Suez Canal Company in 1952, and, in 1953, he was elected a Vice-President of the Institution of Civil Engineers.

Mr. R. T. de Poix has been elected Chairman of the Zinc Development Association for 1957.

assistant in the Permanent Way Department. In 1938 he returned to the L.N.E.R. as Assistant District Engineer, Sheffield. During the recent war Mr. Ratter served with the Royal Engineers in France, Africa, and Italy as well as in the War Office. He became Deputy Director of Transportation, C.M.F., with the rank of Colonel, with responsibility for railway reconstruction in the Italian campaign. He was mentioned in despatches in 1942, awarded the O.B.E. and Legion of Merit (U.S.A.) in 1944, and the C.B.E. in 1945. On demobilisation he returned to railway service and was appointed District Engineer, Guide Bridge, L.N.E.R.; in 1946 he became Permanent Way Assistant to the Engineer, Kings Cross. The following year he rejoined the L.P.T.B. as Civil Engineer (Maintenance), with responsibility for maintenance of all railway and tram permanent way and for all rail and road service properties of the Board. He became Chief Officer, Engineering (Works), Railway Executive Headquarters in 1951, and, in October, 1953, Chief Officer (Civil Engineering),

British Transport Commission. At that time also, he became Chairman of the Civil Engineering Committee. His appointment to his present position on the General Staff of the Commission took place in 1954.

Mr. John Edgar March, Manager of the Canadian Pacific Railway Department of Public Relations, who, as recorded in our January 18 issue, has retired, has served the C.P.R. for over 30 years. Mr. March entered the newspaper business in 1911 as a reporter in his native Saint John, N.B. Shortly after the outbreak of the 1917-18

District Traffic Manager, Wellington, is also retiring. He will be succeeded by Mr. S. Smith.

The following appointments in the Administration's Port Department have been announced by East African Railways & Harbours:—

Mr. F. R. F. Broomhead to be Assistant to the Chief Ports Manager; Mr. S. G. Poskitt to be Port Manager, Dar-es-Salaam; Mr. J. Shaw to be Senior Harbour Master & Marine Assistant, Kilindini; Mr. R. D. Crow to be Assistant Port Manager, Mombasa;

departments of the Region. Mr. Fleet served on many committees during the course of his career, and, at the time of his retirement, was Chairman of the Staff Forms and Pay-bills Statistical Committees.

Mr. D. B. Wallace, who, as recorded in our January 18 issue, has been appointed Manager, Department of Public Relations, Canadian Pacific Railway, has been Assistant Manager of the Department since its formation in 1945. Mr. Wallace was born in Halifax in 1909, and graduated in arts from Acadia University, Wolfville, N.S., in 1931.



Mr. J. E. March
Manager, Department of Public
Relations, C.P.R., 1955-56



Mr. D. B. Wallace
Appointed Manager, Department of
Public Relations, C.P.R.

war he went overseas with the 26th Infantry Battalion with which he attained the rank of captain. Wounded twice, he returned to Canada and became associated with the *Ottawa Journal*. Later, he worked as a parliamentary correspondent, first with *The Canadian Press* and then the *Montreal Star*, whose Ottawa bureau he headed, and joined the Canadian Pacific Railway as Press Representative in Winnipeg in 1926. After three years working out of Winnipeg and covering the system's western lines between the Lakehead and Vancouver, he moved to Montreal as Press Representative and became Assistant Manager of the C.P.R.'s press bureau there in 1934. He became Assistant Manager of the then newly-formed Department of Public Relations in 1945. He has been Manager since January, 1955.

The following administrative changes have been announced by New Zealand Railways: Mr. J. G. Whetton, District Traffic Manager, Auckland, is retiring, and will be succeeded by Mr. A. W. Egan. Mr. K. D. Croft,

Mr. J. C. Campbell to be Harbour Master, Dar-es-Salaam, and Mr. C. J. S. Watkins to be Commercial Assistant to the Chief Ports Manager.

The following is an extract from the supplement to the *London Gazette* No. 40975, dated January 1, 1957:—

"The Queen has been graciously pleased to confer the award of the Army Emergency Reserve Decoration upon Major L. T. Starks."

Major Starks is the Hon. Treasurer of the Permanent Way Institution, and is employed as Chief Clerk in the District Engineer's Office, Kings Cross, Eastern Region, British Railways.

Mr. Edwin Fleet, Head of Office Methods, London Midland Region, British Railways, retired on January 29 after 51 years of service. During his term of service as Office Methods & Mechanisation Officer Mr. Fleet was responsible for the introduction of revised office methods and mechanisation in all

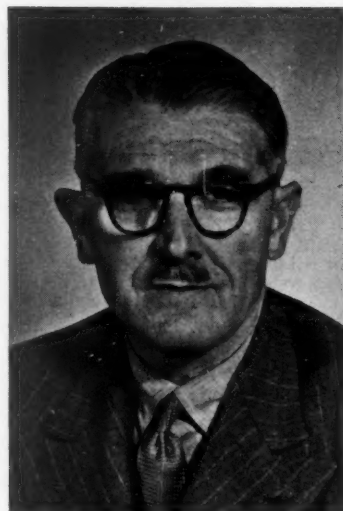
He served with the *Halifax Chronicle* and the *Canadian Press* at Halifax. In 1934, he received his M.A. in economics from the University of Toronto and became a member of the editorial staff of the *Financial Post* in Toronto. Mr. Wallace joined the C.P.R. in 1935 as a member of the Comptroller's special staff and was engaged in economic studies. During 1937-38 he toured Canada as an observer for the company with the Royal Commission on Dominion-Provincial relations. In 1941 he was loaned for war-time duties as Administration Manager of the Atlantic Ferry Bomber Service, which later became the R.A.F. Ferry Command. He was appointed Assistant to the Vice-President & General Manager of Canadian Pacific Airlines in 1942, when the air lines were actively engaged in flying the north-west staging route and operating training schools for the British Commonwealth Air Training Plan. In 1943, he became special representative of the Canadian Pacific and spent considerable time in Ottawa on special duties. In 1945 he travelled throughout Canada



Mr. H. G. N. Read
Assistant Commercial Manager,
L.M. Region, 1948-57



Mr. H. Bell
Appointed District Motive Power
Superintendent, Newcastle, N.E. Region



Lt.-Colonel L. F. R. Fell
Appointed Head of the new centralised sales
organisation of Rolls-Royce Limited

with the Royal Commission on Coal. With the formation of the C.P.R.'s Department of Public Relations in 1945, Mr. Wallace became Assistant Manager. He is President of the Association of Railroad Advertising Managers.

Mr. H. G. N. Read, Assistant Commercial Manager, London Midland Region, British Railways, who, as recorded in our January 4 issue, retired on December 31 last, began his career with the former London & North Western Railway in 1907. During the 1914-18 war he served successively with the R.N.V.R., R.N.A.S. and in the Army, and was mentioned in despatches. He retired from the Army in 1919 with the rank of Major, having held the appointment of Deputy Assistant Director of Inland Water Transport in France. He returned to railway service and, after a period in the department of the General Superintendent (Passenger Commercial), was appointed in 1931 Assistant District Passenger Manager, London. He became Road Transport Assistant to Chief Commercial Manager in 1932, Road & Air Transport Assistant in 1936, and Assistant (Road & Air Transport & General), in 1938; his responsibilities in the last-named appointment embraced the Claims Department. He became Assistant Commercial Manager in 1948. In the years immediately following on nationalisation Mr. Read was charged by the Railway Executive with extra-Regional responsibilities respecting traffic claims, then very high through loss and pilferage. Mr. Read has been a director of 10 omnibus companies, member (and Chairman in successive terms) of four joint committees of railways and municipalities, and Chairman or director of eight railway associated air transport companies. In 1947 his services were lent by the then L.M.S.R., at the request of H.M. Government, to advise the Argentine Government on the co-ordination of road and water transport with the railways of that country. He is a past Member of Council of the Institute of Transport and of the Council of the Public Transport Association. He is a Member of the Transport Users' Consultative Committee for the East Midlands Area.

Mr. N. H. Payne has been appointed a director of Dowty Fuel Systems Limited.

Mr. H. Bell, who, as recorded in our January 4 issue, has been appointed District Motive Power Superintendent, Newcastle, North Eastern Region, British Railways, was educated at St. Peter's School, York, and Highgate School, London. He received training at the Central Marine Engine Works, West Hartlepool, and obtained subsequent shipyard experience on the introduction of welding. Mr. Bell served for seven years with Messrs. Digby & Partners, Consulting Engineers, as Senior Assistant dealing with general engineering and electrical work including portions of large hydro-electric schemes. He entered the service of the London & North Eastern Railway in the Locomotive Running Department at Doncaster in 1940, and was employed in various positions in the Southern Area until 1945, when he was appointed Assistant District Locomotive Superintendent at Gorton. When the fusion of the Longsight and Gorton Districts took place in 1951 he became Assistant District Motive Power Superintendent, Manchester South, and, in August, 1952, District Motive Power Superintendent, Southend District (Plaistow). In 1955 he became District Motive Power Superintendent, Grimesthorpe, Eastern Region, the position he now vacates.

Mr. L. Reeves, Carriage & Wagon Engineer, Eastern & North Eastern Regions, British Railways, retired on January 26 after 49 years of service.

Mr. S. E. Raymond, Director of Establishment & Staff, British Transport Commission, has been appointed Chief Commercial Manager, Scottish Region, British Railways.

Mr. Andrew Black has been appointed to the Monopolies Commission for a period of three years.

We regret to record the death on December 28, at the age of 80, of Mr. James Hurst, Chairman of the former Belfast & County Down Railway for 28 years.

Mr. W. Pitkethly has been appointed Manager of the Purchases & Supplies Department of the British Aluminium Co. Ltd. in succession to Mr. R. L. C. McDonald, who retires on February 2.

Lt.-Colonel L. F. R. Fell, D.S.O., O.B.E., M.I.Mech.E., M.I.Loco.E., who, as recorded in our January 4 issue, has been appointed head of the newly-formed centralised sales organisation set up by Rolls-Royce Limited in respect of the railcar side of that company's oil engine business, served his apprenticeship on the Great Northern Railway (England). He was subsequently employed in the Running Department of that system. After service in the R.F.C. and R.A.F. during the 1914-18 war, he joined the Air Ministry to take charge of aero engine design and research, and on behalf of the Government, was responsible for initiating and supervising the pioneering experiments on high-speed diesel engines at the Royal Aircraft Establishment in the early 1920s. He was also closely associated with Mr. Alan Chorlton of Beardmores in the development of the successful high-speed oil engines used for airship and railway traction. In addition, he had the supervision of contracts for oil engine experimental work placed by the Air Ministry with Ricardos. In 1933 Colonel Fell read a paper before the Institution of Mechanical Engineers entitled "The Compression Ignition Engine and its Application to British Railways." In 1936 he was associated with the late Lord Kenilworth in the introduction to this country of the Michelin light-weight railcar, two of which were built by Armstrong Siddeley at Coventry and tested on British Railways. Colonel Fell is the patentee of the Fell diesel-mechanical locomotive, the prototype of which has been purchased by British Railways after successful trials. He read a prize-winning paper on this locomotive before the Institution of Locomotive Engineers in 1952.

Metropolitan-Vickers Electrical Export Co. Ltd. announces that, on January 1, Mr. H. F. Bibby, Assistant General Manager, and Mr. G. H. Jolley, Principal Representative of the Export Company at Trafford Park, were appointed to the board.

Mr. W. M. Dravers, General Manager of Maidstone & District Motor Services, has been appointed to the executive staff of British Electric Traction Co. Ltd. as from a date to be agreed. He will be appointed to the boards of a number of associated companies.

NEW EQUIPMENT AND PROCESSES

Damaged Thread Restorer

THE problem faced in many running depots of using parts, not easily replaceable, the threads of which have become damaged, is tackled by a patent thread restoring tool, known as the Bolt Saver. The manufacturer points out that



most screwed pieces are usually damaged at the leading end making conventional methods, where the tool has to be screwed on, difficult. The Bolt Saver is easier to use because it opens up to receive the item and does not have to be screwed on to the damaged thread. Emphasis is

placed on the fact that the tool does not cut as such, but re-forms or re-rolls the damaged thread restoring it to its original shape without removing any metal, thus restoring the full gripping power of the thread.

The tool is also said to be useful for holding threaded parts in a vice, as when cutting off lengths of studding, and for crimping hose ferrules and worm-drive clips, when the special tools are not available.

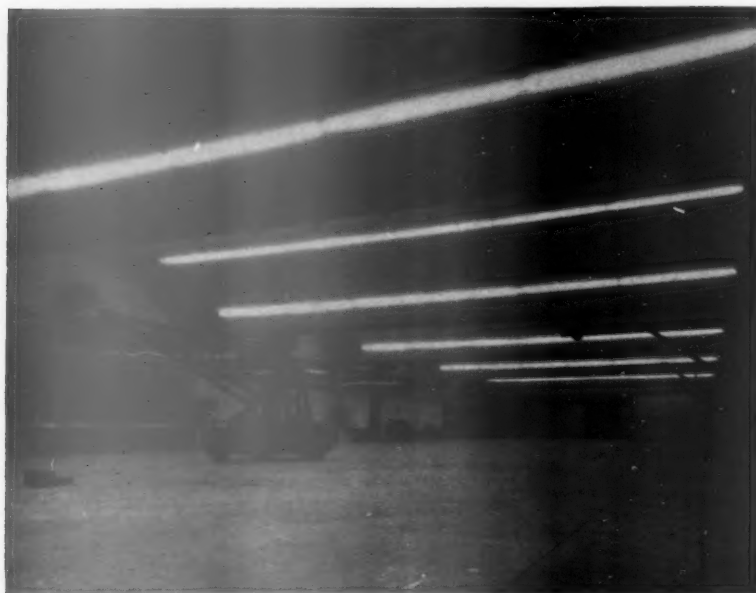
The Bolt Saver is made from suitable hardened and tempered steel and measures $7\frac{1}{2}$ in. long, and weighs 22-oz. It takes the following sizes: $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$ and $\frac{1}{2}$ in., with alternative thread forms: B.S.W., B.S.F., S.A.E., U.N.F., Metric, and C.E.I.

The price of the tool is £1 7s. 6d.; delivery of any of the thread forms can be made from stock. The manufacturer is Lawrence Edwards & Co. (Engineers), Ltd., Oxford Street, Kidderminster, Worcs.

Cold Cathode Strip Lighting

THE suppliers of the lighting fittings installed a short while ago at York Station, North Eastern Region, have recently also provided the illumination of the Eastern Region road motor depot at Kings Cross.

The Trilite cold cathode lighting fittings are fixed direct to the barrel-type concrete ceiling, all the wiring, transformers and so on being positioned on the outside of the roof. The fittings have been designed in conjunction with the Chief Mechanical & Electrical Engineer of the Eastern Region. The unit has a perspex enclosure which is held in position by means of quick release fasteners against rubber gaskets to provide a reasonably dust and water tight interior. Microgap interlock switches are fitted to ensure safety during maintenance. The Trilite fittings each employ three 8 ft. long



cold cathode tubes at a colour temperature of 3,500° K., and work from normal 250 V. a.c. mains supply.

As may be seen in the illustration, the fittings have been mounted end to end across the roof of the garage. The manufacturer also supplies the Bilite, with two 8 ft. long tubes, and the Hilite, a 3 ft. dia. globe unit enclosing the transformers and 42 ft. of cold cathode tubing, both models also having been designed for railway application.

The manufacturer is Ionlite Limited, 89, Scrubs Lane, N.W.10.

Mobile High Pressure Lubricator

A LUBRICATOR which can dispense heavy grease and oil up to a pressure of 6,000 p.s.i., from an applied air pressure of 80 p.s.i., and which is said to meet the precise requirements of British Railways, is the Type 2927 V. The unit is suitable for



the lubrication requirements of diesel and steam locomotives and road transport vehicles, and is designed to operate with factory-filled standard-sized grease or oil containers. In the U.K. these are of 1 cwt. and 12 gal. capacities respectively, but the Lubricator can be adapted to use the standard containers of most overseas countries.

The Type 2927 V. is fitted with a new type of Wakefield pump, which in addition to retaining its "slow reciprocating" action, has a redesigned totally-enclosed valve gear which has less movement resulting, it is believed, in even longer life. The valve gear is grease lubricated—when fully packed the grease will last for approximately six months, from one servicing to the next.

The trolley, which is said to be exceptionally robust, is delivered complete with 22 ft. of $\frac{1}{2}$ in. bore grease hose, lightweight grease pistol, and a complete set of adaptors for push-on and snap-on nipples

which, when not required, can be housed in a special adaptor box. Also supplied is a 50 ft. length of air hose for connecting to an existing supply.

The container may be changed when empty by lifting off the pump unit complete with cover plate after loosening two wing nuts. Leading particulars of the unit are: height 3 ft. 3 in., width 2 ft. 4 in., length 2 ft. 11 in., all-up weight 1½ cwt.

The price of the Type 2927 V. Lubricator is £75 9s., and delivery is six weeks. The manufacturer is C. C. Wakefield & Co. Ltd., 46, Grosvenor Street, W.1.

Floatless Level Switch

TWO versions of the floatless Liquid Level Switch type WX (covered by Patent No. 565,309) are available; one is designed for use in traction vehicle radiator headers,



diesel locomotive headers for instance, and the other for industrial applications, such as high or low level indicators on steam boiler plant.

Operating on an entirely new principle, the instrument has no moving parts and is therefore particularly suitable for installation where the interior of the vessel being controlled is not readily accessible, since it requires no maintenance whatsoever. The WX Liquid Level Switch is a thermal instrument operating on a difference in heat transfer between the sensitive element and the liquid in the vessel, or the sensitive element and the vapour; not on the difference in temperature or latent heat. This principle gives a very sensitive response and the traction model operates within 8-12 sec. of the liquid level receding. It also provides an automatic surge damping effect, as a positive change in level of sufficient duration to affect the heat transfer rate is necessary before the switch will operate. This is a very valuable feature for traction and vehicle installations where momentary changes in level caused by the movement of the vehicle cannot be avoided, since it means that the switch will operate only when there is a definite change in volume or permanent displacement of the vessel and will not short-cycle or cause false alarm. The traction model designed for

operation on 24/32 V. d.c., has a current consumption of 1 amp. inductive or 2 amp. non-inductive. The industrial unit is rated at 250 V. a.c., 5 amp.

The switch measures 13½ in. overall, the case being approximately 4½ in. × 3½ in. It may be mounted either by a screwed boss or a flange. The instrument is ruggedly constructed and has been made shock and vibration proof to meet the arduous conditions experienced in railway service.

The price of the switch, which is subject to manufacturer's discounts, is available on application; delivery is four weeks. The manufacturer is Teddington Industrial Equipment Limited, Sunbury-on-Thames, Middlesex.

Carriage Toilet Compartment Water Heater

A ONE-GALLON thermostatically controlled water heater, suitable for serving rolling stock toilet compartments, is now available. The inner container of the water heater is constructed of copper sheet, with welded seams, and is tested to 6 lb. p.s.i. It is fully thermally insulated on all sides and enclosed by a mild steel sheet outer casing, to which it is bonded electrically. The element assembly consists of two 52-V., 750-W. sheathed-wire elements mounted on a plate which is fitted to the container. It can be removed complete by unscrewing the two fixing nuts. The terminal block is a separate item, screwed to a bracket on the element plate, and can be transferred to a new element assembly when replacement of the latter is necessary.

The thermostat is secured by a spring clip in a tinned copper pocket which is made watertight to the heater during manufacture. The thermostat is removable without draining the heater. A special locking device is fitted to lock the setting at 120, 140, or 160° F. The complete heater has been Admiralty shock-tested. Overall dimensions of the heater are 13 in. × 10 in. × 4½ in.

The price and delivery are available on

application to the manufacturer, the General Electric Co. Ltd., Kingsway, W.C.2.

Casting Riser Cutting Machine

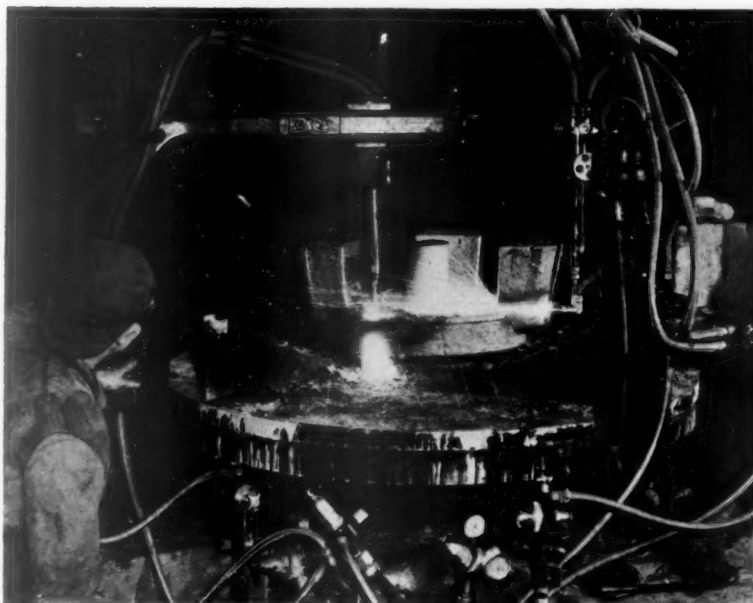
A RISER cutting machine recently supplied to a Cumberland foundry for removing the risers on steel castings is suitable to be adapted for use with wheel castings of locomotives.

The machine, illustrated below, is designed to suit gear blanks. It has an electrically-driven turntable of 5 ft. 6 in. dia. which is capable of accommodating gear wheels from 1 ft. to 5 ft. dia. A flexible drive is fitted which has a periphery speed range of 3 to 42 in. per min.

Two M.C. 12 machine cutting blowpipes each mounted on a standard 36-in. Universal Cutting Machine column and arm, are set at right angles to each other and close to the edge of the turntable. Since in this instance each riser on the blank not only projects vertically but also overhangs the edge of the wheel, two cuts are necessary to remove it, one blowpipe making a horizontal cut.

The operator sets the casting squarely in the centre of the table, selects the required speed and brings the first riser round to the horizontal cutter. The start of the cut is preheated for a few seconds, after which the cutting oxygen and turntable motor are switched on simultaneously and the horizontal cut made, kept exactly flush with the side of the wheel, within the tolerance of ¼ in. The turntable then carries the partly-cut riser to the vertical cutting station. At the same time, the next uncut riser positions itself adjacent to the horizontal cutting station. A brief time is then allowed for preheating, after which both cutters operate together. The resulting finish requires little grinding and is said to save 75 per cent time over the previous method of swing grinding.

The manufacturer, British Oxygen Gases Limited, S.W.1, offers to design a similar machine to suit individual problems, while using, where possible, their standard equipment.



Permanent Way Institution Meeting and Conversazione

The responsibilities of permanent way men under the modernisation plan: the use of mechanical equipment

The 73rd annual winter meeting of the Permanent Way Institution was held at the Institution of Civil Engineers, London, on January 26. The President, Mr. Arthur Dean, Chief Civil Engineer, British Railways, North Eastern Region, was in the chair. Over 200 members attended from all parts of the country, including Messrs. M. G. R. Smith and J. Taylor Thompson, Past Presidents, Sir Allan Quartermaine, Past President, Institution of Civil Engineers. Lt.-Colonel G. R. S. Wilson, Chief Inspecting Officer of Railways, Ministry of Transport; and Messrs. John Ratter, Technical Adviser, British Transport Commission, and J. L. A. Cuperus, Past President, Netherlands Railways Way & Works Association.

The Secretary, Mr. H. Janes, and Treasurer, Mr. L. T. Starks, submitted a joint report on the activities of the Institution during the past year, during which 553 new members had joined the Institution.

The President expressed the pleasure of members at the bestowal, since the last annual meeting, of the honour of knighthood on Sir Allan Quartermaine and on Mr. J. C. L. Train.

Office Bearers

Mr. Dean then recalled that at the previous meeting Mr. Ratter had been nominated as President for 1957, and formally proposed his election, which was carried with applause.

The following were elected as Vice-Presidents:—

For England, Mr. H. W. Clarke; Scotland, Mr. E. J. M. Matheson; Wales, Mr. L. Williams; Ireland, Mr. L. Stephens; India, Mr. G. Visvanathan; Rhodesia, Mr. J. F. McIntosh; Sudan, Mohamed Eff. el Fadl; Malaya, Mr. G. M. Wheat.

The present officers were re-elected:—Secretary, Mr. H. Janes; Treasurer, Mr. L. T. Starks; Editor, Mr. H. Ormiston; Auditor, Mr. G. Hellaby; and Mr. E. E. J. Harris was elected joint auditor.

Arrangements for 1957 Summer Meeting

After members of Council and various Committees had been elected, particulars were given of the 1957 summer meeting and convention to be held at Morecambe on June 1-6. Visits will be made to the works at Preston of the English Electric Co. Ltd., to the Workington Iron & Steel Co. Ltd. works, to the granite quarries at Shap, Barrow docks, and so on.

Mr. Dean then gave a short address on labour saving devices in permanent way work.

Conversazione

The fifth annual conversazione was held the same day at the headquarters of the British Transport Commission. Those who accepted invitations included:—

Sir Brian Robertson, Chairman, British Transport Commission; Mr. D. Herlihy, Chief Engineer, Coras Iompair Eirean; Sir John Benstead, Deputy Chairman; Mr. J. W. Watkins, Member; and Mr. S. B. Taylor, Chief Secretary, B.T.C.;

Mr. C. P. Hopkins, General Manager, Southern Region; Mr. James Ness, General Manager, Scottish Region;

Mr. Edgar Anstey, Films Officer, B.T.C.; Mr. R. C. Bond, Chief Mechanical Engineer, Mr. J. Holden Fraser, Chief Signal Engineering Officer, Mr. S. B. Warder, Chief Electrical Engi-

neer, Mr. T. M. Herbert, Director of Research, and Mr. A. E. Robson, Chief Carriage & Wagon Engineering Officer, British Railways Central Staff, B.T.C.

Lt.-Colonel G. R. S. Wilson and Brigadier C. A. Langley, Inspecting Officers of Railways, Ministry of Transport & Civil Aviation; Mr. E. S. Cox; Mr. J. L. Cuperus; M. Feyrabend (French National Railways).

Mr. Ratter, after receiving the guests, addressed the company. There was something about permanent way men, he stated, that was not a characteristic of everybody. They all knew what was meant by teamwork even in this age of mechanisation and work study. The permanent way man was never far away from the old elemental forces of nature. He knew all about floods, landslides, snow, fog, frost, and all sorts of things against which man had fought for years. He depended on the team, on his mates, on his inspector; the inspector depended on his engineer, and so on up to the top. This dependence was mutual and worked in two ways. That sort of mutual trust and dependence was a strong characteristic of this Institution, in which they had learned all to learn from another, whatever their grades, and at meetings all over the country this was very much in evidence.

They had received with great gladness, Mr. Ratter continued, the news of the Knighthoods conferred on Sir Allan Quartermaine and Mr. J. C. L. Train. Among the guests he welcomed were the guest of honour, Sir Brian Robertson, Sir John Benstead, Mr. Train, Mr. Watkins, two General Managers of Regions, Lt.-Col. Wilson and Brigadier Langley, and representatives of overseas railways. He wished particularly to thank Sir Brian Robertson for being present, and for giving up some of his scarce leisure amidst his heavy responsibilities.

Raising Speed Limits

Sir Brian Robertson remarked that by nature of their work permanent way men were hard to meet, though he himself did his best to meet them on his way around British Railways.

He reminded his audience that the first thing dealt with in the modernisation plan was the track, on which they would be spending, this year, about £15 million. A certain number of speed limits had been raised. The London Midland Western Division had gone up to 90 m.p.h.; the Midland Division would be there soon. The Eastern Region, where diesel multiple-unit trains were running, had raised speed limits 5-10 m.p.h. Limits would be raised elsewhere very soon.

The standards set these days on the main lines on the Continent and in America were very, very high, and the standard of British Railways in these matters could only be a bit better than the best. Current problems of traction and high speed needed much study, and that was why they were spending large sums on the four-mile test track near Derby, out of which they hoped to get a very great deal of value and learn a lot.

Mechanical Appliances

Working on the permanent way took a man away from his home a lot. They were doing what they could to make it easier by buying mechanical appliances—

tamping machines, of which they had 100 this year, and ballast cleaning machines, of which they had 16. They are very valuable, he added, and enabled gangers to do a great deal more work than otherwise they would normally do; but when the machine had finished its work there was still a lot to do.

Sir Brian Robertson hoped that permanent way officers and supervisory staff would do all they could to foster the spirit of pride in one's work. Machines could not take the place of the real skill of a well-trained gang. He hoped that the new work study techniques would be pushed ahead.

Long-Welded Rails

He went on to refer to the advantages of long-welded rails. London Transport had had them for a long time, because conditions were favourable. British Railways were developing the use of these in tunnels and other suitable places; but it was right to be cautious in relying on the experience of other administrations working in possibly different conditions.

Mr. D. Herlihy referred to the worldwide membership of the Institution, and to the problems of modernisation and improvement facing all railways. He pointed out that railways, unlike some competing modes of transport, had to pay for their own permanent way. As the cost of this was some 15-20 per cent of the expenses of the railways to which their members belonged, the importance of its maintenance was very great. The present generation of permanent way staff, whether due to the impetus of competition or not, were certainly as keen as their predecessors in seeing that everything was done to ensure that the upkeep of permanent way would be kept to the minimum cost. Now it was in Great Britain that their Institution was established and it was fitting that this evening the Chairman of the British Transport Commission should come to address them.

Mr. Ratter then read a letter from Mr. F. Q. den Hollender, President of the Netherlands Railways regretting his unavoidable absence and extending his best wishes to all at the conversazione. He also read a letter from Mr. Murgatroyd, a Past President, aged 85, and their oldest member, who had joined in 1885.

The attractions included some British Transport films and an exhibition of Micrographs depicting developments and present practices in respect of permanent way and bridges of British Railways and London Transport.

BRITISH OXYGEN GASES LIMITED EXPANSION AT GREENWICH.—To improve the efficiency of its supply of industrial gases, British Oxygen Gases Limited has carried out major structural alterations to its premises at Tunnel Avenue, Greenwich. The company have also built a two-storey extension to the office block to provide additional accommodation. The factory at Greenwich manufactures gaseous oxygen and nitrogen, compressed air and coal gas (used for industrial burning). It also supplies hydrogen (for chemical processes and lamp making), dissolved acetylene, propane (sometimes used for metal cutting), and argon (used for shielded arc welding).

Support for Northern Ireland Transport Decision

The executive committee of the Belfast Chamber of Trade having considered the decision of the Government of Northern Ireland as announced by Lord Glentoran, Minister of Commerce, that there should be a competitive road freight system in the Province, decided to support it.

Mr. R. Carlisle, Commercial Manager, Ulster Transport Authority, stated at a meeting of the Chamber of Trade last week that the Government would put the clock back if it removed the road freight monopoly from the U.T.A. He pointed out that after a competitive system was introduced it was hard to see how the railways, as far as freight was concerned, would carry on. Referring to the through rates between Great Britain and Northern Ireland, he pointed out that if a competitive system were introduced it would result in the reduction of these rates, which he contended were favourable to the traders of Northern Ireland, and the loss of them was estimated to cost an additional sum of about £100,000 in the year.

Mr. J. F. Atkinson, Assistant Traffic Manager, Great Northern Railway Board, supporting Mr. Carlisle, maintained the removal of the U.T.A. monopoly would have a most disastrous effect on the railway undertakings.

Mr. H. A. Mugliston, Shipping Traffic Superintendent, British Railways, Belfast, pointed out that any disturbance of existing arrangements would lead to a less regular service in remote districts.

Winter Transport Conference

The industrial transport position arising from petrol and oil fuel rationing was again reviewed by the Winter Transport Central Joint Conference at the meeting in London referred to editorially last week. The conference, which comprises representatives of the British Transport Commission, the Federation of British Industries, the Association of British Chambers of Commerce, the National Union of Manufacturers, and the National Farmers' Union, met under the chairmanship of Mr. J. W. Watkins, Member of the Commission.

Volume of Rail Traffic

It noted that although certain increases in rail carryings had been reported by British Railways, the volume of traffic transferred from road to rail had not come up to expectations, and that spare railway capacity was still available in many parts of the country. Satisfactory results were reported from the emergency arrangements which had been made to carry B.R.S. trunk traffic by special trains operating between perimeter railheads near large cities. Subject to consultation with the railway district officers or goods agents concerned, these special trains are available where possible for road hauliers' traffic other than that of B.R.S. The B.T.C. representatives also reported at the conference that an increasing number of special freight trains were being run for major streams of traffic and that the railways were prepared to put on special trains for any justifiably large flow of traffic.

The conference agreed that it was highly desirable that the marginal capacity of the railways should be fully utilised immediately,

and decided to appeal to traders forthwith to review their transport requirements and the resources likely to be available, so that if necessary they can avail themselves now of the latent capacity of the railways. It attaches particular importance to this in view of the probability of severe weather at this time of the year and the uncertainty as to future fuel supplies.

Traders are being urged to consult with local railway officers or goods agents as to how the railways can help in carrying their additional traffic. The attention of traders located near the major inland waterways is drawn to the spare capacity which exists by this means of transport.

The district committees which already exist through the conference machinery, it was pointed out, will give every help in co-ordinating all available transport resources.

Modernisation of Enfield Town Station

The Eastern Region is to modernise Enfield Town Station buildings in readiness for the electrification of the line to Liverpool Street on the new high voltage a.c. system which is to be completed in 1960. Work on the modernisation of the station buildings will begin early this month. The station buildings are to be modernised immediately, but considerable alterations will be made later to the track layout between the station buildings and Lincoln Road to facilitate the inspection, cleaning, and quick turn round of electric trains at Enfield Town. The alterations to be carried out nearer the date for electrification include the demolition of the existing steam engine shed and outbuildings, to make room for platforms 1 and 2 which are to be widened and provided with a modern type awning. The station concourse will also be widened. The platforms will be able to accommodate electric trains up to nine cars in length.

Extension of Station Buildings

The existing station buildings at Enfield Town are about 80 years old. These are to be completely modernised with an extension to house the parcels office and coal offices built to the south of the existing structure in an area at present occupied by several small buildings. The accommodation to be provided in the modernised buildings will include a spacious booking hall facing the station yard with clerestory lighting on all sides, and adjoining the booking hall will be a ticket office with mechanised equipment, a parcels office with separate public lobby, and a bookstall. A ladies waiting room and lavatories with access from the concourse will be built in the extension.

The remainder of the space will be occupied by staff rooms and offices, a cycle store, and two coal merchants offices.

Temporary Awning

A temporary awning will be provided between the booking hall and platforms, and this will be rebuilt at the same time as the platform awnings. Walls will be in brick with tile facing in certain portions. Rooves will be flat. Internal wall finishes will be of plaster, tiles, and plastic sheeting and floors will be laid with quarry tiles, Terrazzo, and linoleum. New furniture designed specially for the Eastern Region will be provided throughout the station and the lavatories will be completely modernised. The boiler for

the new heating system will be housed in the existing basement which is to be retained. Temporary accommodation for passengers and staff will be available whilst building work is in progress. Generally, the various materials have been chosen for their pleasing appearance and suitability to withstand hard wear with a minimum of maintenance.

The modernised station buildings were designed by the Eastern Region Architect, Mr. H. H. Powell, under the general direction of Mr. A. K. Terris, Chief Civil Engineer. The work is being carried out by Kind & Company (Builders), 564, High Road, Leytonstone, E.11.

QUASI-ARC TECHNICAL CIRCULAR.—A new technical circular dealing with manipulative equipment for manual and automatic arc welding, has been issued by Quasi-Arc, Limited, of Bilston, Staffs. It includes illustrations of some typical uses of manipulative equipment to provide efficient welding, also details concerning roller beds, welding positioners, cantilevers, the radial beam positioner, and the internal welder. Copies of the circular (T.C. 103) are available on request from the firm.

EFFECTS OF STEEL RE-NATIONALISATION ON DORMAN, LONG & CO. LTD.—At the annual meeting of Dorman, Long & Co. Ltd., in London on January 23, Sir Ellis Hunter, Chairman and Managing Director, stated that the directors had given consideration to a suggestion by some shareholders that a higher dividend might favourably affect the amount of compensation payable in the event of re-nationalisation of the iron and steel industry. The position of the company differed, he stated, from that of most of the other major companies engaged in the iron and steel industry. Dorman, Long & Co. Ltd., was purely a holding company and did not itself carry on any trading activities at all. It had eight principal trading subsidiaries: Dorman Long (Steel) Limited, Dorman Long (Bridge & Engineering) Limited, Dorman Long (Chemicals) Limited, Redpath Brown & Co. Ltd., Tees Side Bridge & Engineering Works Limited, British Structural Steel Co. Ltd., Dorman Long (Africa) Limited, and Dorman Long (Rhodesia) Limited; the last three of these operated wholly abroad. In the event of re-nationalisation of the iron and steel industry only Dorman Long (Steel) Limited, would be affected. Dorman, Long & Co. Ltd., held the whole of the issued capital of Dorman Long (Steel) Limited, so that there was no market quotation of Dorman Long (Steel) Limited which could be used to prejudice the basis of compensation for that company. The value of Dorman Long (Steel) Limited, depended on its assets and earning capacity, and there was no reason why variations in the rate of dividend paid by Dorman, Long & Co. Ltd., as the parent company should affect compensation payable in respect of Dorman Long (Steel) Limited. The interests of Dorman, Long & Co. Ltd., in the event of the re-nationalisation of iron and steel to be continued had been safeguarded. All advances made to Dorman Long (Steel) Limited would become repayable to the parent company, which would then in accordance with its obligations repay the unsecured loan stock and the outstanding amount of the advances from Finance Corporation for Industry Limited. Dorman, Long & Co. Ltd. would still own all the other companies, and would also be entitled to compensation for Dorman Long (Steel) Limited.

Parliamentary Notes

Transport (Railway Finances) Bill

Mr. Harold Watkinson, Minister of Transport & Civil Aviation, in commending the third reading of the Transport (Railway Finances) Bill, in the House of Commons on January 22, said the Commission came forward with its bold and imaginative plan which would have received a great deal more attention had not the country been preoccupied with Suez and other matters. If the plan could only be made good, the railways would change into something more appropriate to the second half of the twentieth century and not something resembling a hang-over from the end of the nineteenth.

He wished to make it plain that there were other forms of transport on which it would be considered suitable to spend large sums of money. The Government might be more popular in the transport sphere were they to spend, or arrange to spend, more money on roads, and perhaps air transport, and less on railways.

"I should like it to be clearly understood that the decision to apportion this large sum of money from the very scarce national resources," he stated, "has been a difficult one to take. It is one which, regarded from pure reasons of popularity, might have been better spent on roads or in other ways. At least, there are many people who think that we should be spending on roads amounts similar to what we are thinking of spending on the railways."

"I want this great industry to realise that this plan is not a soft option for it. I do not think it regards it as such, but the position must be made plain. It is a challenge. I could not agree more with the hon. Member for The Hartlepoons (Mr. David Jones) that if the men in the railway industry do not want to work the plan, then the plan is finished. The railways will, in the end, have to be broken up, sold, and disposed of. It is the men who matter; they are the people who will implement the plan and make it work."

"The plan is not a soft option, not an easy thing to work out. I shall always be pressed by other interests that this money would be better spent on other forms of transport. If the railways cannot answer the challenge by making the plan work, then the whole question of disposing of these large sums of money might well have to be reconsidered."

In the past few months there had been a great gain of good will on the part of the general public, a feeling that the railways were making a come-back to what they ought to be, much higher in the industrial hierarchy. There was a feeling that the railways were playing an important part in helping to save the country's fuel. All that good will could easily be destroyed if the plan did not work.

He thought the formation of the Railways Productivity Council might yet prove to be one of the turning points in modern railway history. A large proportion of the B.T.C. staff could now benefit under one or more of the new productivity schemes which had been most loyally and enthusiastically supported by the trade unions. The B.T.C. had a drive to raise that proportion still higher. If the plan was to succeed, all concerned must take account of the fact, when considering their attitude on wage applications, that as time went on, a higher and higher proportion of them would be able to earn extra money out of increased productivity. It would not be a burden on the cost of the railways in the way that a direct round

of wage increases would be. He was not expressing any views on current wage negotiations, which came within the proper constitutional machinery.

The proper implementation of the plan depended on teamwork. He hoped that the railways were prepared to put in something now in the hope of building up a more prosperous future for themselves, and for the country. If they did that, the success of the plan was assured.

He commended the Third Reading of the Bill in some of the words he used on the Second Reading. "This is a great chance for the railways. I sincerely mean that. I equally sincerely mean that it is a chance that will not come again, and if all of us who are concerned cannot seize it and make a success of it, the railways have missed a chance that will never come again. Their prosperous future, which we all so much desire, will never come in our generation."

The Bill was read a third time and passed with a division.

Staff and Labour Matters

N.U.R. Wage Claim

A new wage offer was made to the three railway trade unions at the meeting of the Railway Staff National Council on January 24 in connection with the claim of the N.U.R. for a 10 per cent increase in the rates of pay of railway salaried and conciliation staff.

The Commission offer was that the Railway Staff National Tribunal Award of a 3 per cent increase for footplate staff which took effect from November 26, 1956, should be applied to all conciliation grades and to certain salaried grades with retrospective effect to November 26, 1956. In addition, in order to obtain a quick and directly negotiated settlement, the Commission offered to make certain additional upward adjustments in the rates of all grades which would benefit particularly the lower paid grades. This further adjustment was to take effect from February 4, 1957.

The N.U.R. reported the Commission revised offer to its executive committee and subsequently informed the Commission on January 25 that the offer was not acceptable. It has now asked that its claim for a 10 per cent increase in the rates of pay should be referred to the next and final stage of the machinery of negotiation which is the Railway Staff National Tribunal.

In view of this request of the N.U.R., the Commission has advised all three railway trade unions that its offer made at the meeting of the Railway Staff National Council on January 24 has been withdrawn.

The offer to increase the pay of railway conciliation staff and certain salaried grades by 3 per cent from November 26 would have meant increases ranging from 4s. a week for the lowest paid worker to 6s. 6d. for the highest, and it is understood that the further adjustments operative from February 4 would have given increases from 1s. 6d. to the lowest paid to 6d. per week for the highest.

Railway Shopmen's Pay

At a meeting of the Railway Shopmen's National Council on January 29, the employees' side submitted a claim for a 10 per cent increase in the rates of railway workshop staff. The B.T.C. representatives undertook to give a considered reply.

Contracts and Tenders

It is reported from Montreal that the Montreal Locomotive Works Limited has received an order for 25 1,800-h.p. diesel-electric "World Locomotives" for the Argentine railways. The order is valued at \$6,000,000. Delivery will be in the first half of 1957. The locomotives are to have a continuous maximum speed of 75 m.p.h. and will be fitted with spring buffers.

Suisse Industrie Gesellschaft, Neuhausen am Rheinfall, has received from the Swiss Federal Railways an order for 75 first class bogie passenger coaches.

Schindler Wagons S.A., of Pratteln, has received from the Centovalli Railway, Italy, an order for four triple-car electric trains of about 60 tons weight, 110 ft. length, and 115 seats in two classes. The bogies for these trains are to be built in Milan by Tecnomasio Italiana Brown Boveri.

The Swiss Locomotive & Machine Works, Winterthur, has under construction two large electric rack-and-adhesion locomotives for the Chilean Trans-Andine Railway.

Fiat has received from the Hellenic State Railways an order for 10 diesel railcars of bogie type to be equipped with Fiat horizontal engines of type 700, and for 10 special railcar-trailers.

Beckett Laycock & Watkinson Limited have received orders for their Beclawat hurricane ventilators, fixed windows, weatherproof full-drop windows, and heavy duty sliding door equipment, which are being incorporated in 31 lightweight carriages built for Coras Iompair Eireann at Inchicore works.

British Railways, North Eastern Region, have placed the following contracts:—

L. C. Abdale & Son, Darlington: erection of gate box, Portrack Lane level crossing, Stockton

R. Blackett & Son Ltd., Darlington: erection of stores building, Darlington diesel depot

Samuel Butler Limited, Leeds: supply and erection of steelwork and cladding, carriage and wagon works, York

Cleveland Bridge & Engineering Co. Ltd., Darlington: reconstruction and widening, bridge No. 22, Sherburn colliery

Broom & Wade Limited, High Wycombe: two air compressors and associated equipment, Dinsdale.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call from India for steam locomotives, boilers, fireboxes, railcars, and cranes, in respect of the global procurement programme of rolling stock, 1957-58, second part, as follows:—

No. 1 2 steam locomotives tank 2-8-4 type with 5.5 ton axle-load for Dholpur section of the Central Railway, narrow gauge 2 ft. 6 in.

No. 2 6 steam locomotives 2-8-2 type with six-wheel tender, with 5.5 ton axle-load for ex-Scindia State Railway, narrow gauge 2 ft.

No. 3 2 locomotive boilers suitable for I.R.S. "XB" class locomotives, broad gauge 5 ft. 6 in.

No. 4 10 locomotive boilers suitable for I.R.S. "YB" class locomotives, metre gauge 3 ft. 3½ in.

No. 5 30 locomotive boilers suitable for I.R.S. "YP" and "YG" class locomotives, metre gauge 3 ft. 3½ in.

No. 6 12 locomotive boilers suitable for I.R.S. "YL" class locomotives, metre gauge 3 ft. 3½ in.

No. 7 12 locomotive boilers suitable for I.R.S. "YC" class locomotives, metre gauge 3 ft. 3½ in.

No. 8 2 locomotive boilers suitable for I.R.S. "ZB" class locomotives, narrow gauge 2 ft. 6 in.

No. 9 4 locomotive boilers suitable for 2-8-2 type "NH/3" class of locomotives, narrow gauge 2 ft.

No. 10 73 steel fire-boxes for A/CWD boilers, broad gauge 5 ft. 6 in.

No. 11 41 steel fire-boxes for MAWD boilers, metre gauge 3 ft. 3½ in.

No. 12 12 all metal light-weight rail-cars, third class, complete in all respects, including wheels and axles, fully furnished and ready for service, broad gauge 5 ft. 6 in.

No. 13 12 all metal light-weight rail-cars, third class, complete in all respects including wheels and axles, fully furnished and ready for service, metre gauge 3 ft. 3½ in.

No. 14 8 steam/diesel operated self propelling transportation travelling cranes for general purpose service to lift 20 ton at 20 ft. radius propped. Cranes are to be fitted with handbrake gear and piped for vacuum brake, to be supplied complete in all respects, with slings and match-trucks, broad gauge 5 ft. 6 in.

No. 15 2 steam/diesel operated self propelling travelling cranes for overhead erection work with 35 ft. long jib to lift five ton at 16 ft. radius unpropped, broad gauge 5 ft. 6 in.

No. 16 9 steam/diesel operated self-propelling transportation travelling cranes for general services with 22 ft. long jib to lift five ton at 16 ft. radius unpropped, broad gauge 5 ft. 6 in.

No. 17 8 steam/diesel operated self-propelling travelling cranes for locomotive coaling service to lift two ton at 24-ft. radius, broad gauge 5 ft. 6 in.

No. 18 4 five-ton steam/diesel operated travelling cranes, metre gauge 3 ft. 3½ in.

No. 19 1 steam/diesel operated self-propelling transportation travelling crane for general purpose service to lift 20 ton at 16 ft. radius propped. Crane is to be fitted with handbrake gear and piped for vacuum brake to be supplied complete in all respects, with slings and match-truck, narrow gauge 2 ft. 6 in.

The issuing authority is the Indian Railways. The tender No. is Global Procurement No. G.P.11/57-58. Bids should be sent to the Director, Railway Equipment, Railway Board, New Delhi. The closing dates are Nos. 1-11, March 18, 1957, and Nos. 12-19, April 11, 1957.

A copy of the tender documents is available for loan to United Kingdom firms on application to the Branch (Lacon House, Theobalds Road, W.C.1). A photo-copy set can be purchased from the Branch for 10s. Cheques and postal orders should be made payable to the Principal Accountant, Board of Trade. Firms wishing to collect photo-copy sets of tender documents are advised to notify the Branch in advance of their requirements.

The reference ESB/30199/56 should be quoted in any correspondence with the Branch.

The Special Register Information Service, Export Services Branch, Board of

Trade, has received a call from South Africa for electrical signalling material as follows:—

40,000 fibre side pieces 80 lb. to S.A.R. drawing U.412

200,000 fibre side pieces 96 lb. to S.A.R. drawing U.411

40,000 fibre end pieces 80 lb. to S.A.R. drawing U.422

200,000 fibre end pieces 96 lb. to S.A.R. drawing U.421

80,000 fibre bushes 80 lb. to S.A.R. drawing U.433

400,000 fibre bushes 96 lb. to S.A.R. drawing U.432

80,000 fibre washers 80 lb. to S.A.R. drawing U.442

400,000 fibre washers 96 lb. to S.A.R. drawing U.441

4,000 gauge plate insulations, each comprising of six insulation washers, three insulation bushings, one insulation centre-piece, to S.A.R. drawing 106/1

3,000 grey fibre insulations for 1½ in. rod joints as per S.A.R. drawings U.436/1, U.444 and U.451, each comprising of four insulation washers, two insulation bushings, one insulation centre-piece

The issuing authority is the Stores Department, South African Railways. Bids in sealed envelopes, endorsed "Tender No. C.6393: Electrical Signalling Material," should be addressed to the Chairman of the Tender Board, South African Railways, P.O. Box 7784, Johannesburg. The closing date is March 1, 1957. A copy of the tender documents, including drawings, is available for loan to United Kingdom firms on application to the Branch (Lacon House, Theobalds Road, W.C.1).

The attention of firms is drawn to the fact that because of the present import restrictions the South African Import Control will not issue an import permit if there is any possibility of obtaining the goods required locally, either from local manufacturers or from overseas manufacturers ex locally held stocks. Where invitations to tender are extended overseas the issue of an import permit will be considered but will not automatically be granted. If an overseas firm is successful, the import permit will be issued, but if a local offer is made, it can be accepted without committing the Administration to the issue of replacement permits. The reference E.S.B. 2192/57 should be quoted in any correspondence with the Branch.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call from Australia for bulk wheat wagons as follows:—

300 bulk wheat wagons, 40 ton, delivery f.o.r. Queensland

The issuing authority is the Queensland Government Railways. Tenders must be enclosed in a sealed envelope legibly endorsed: "Tender for WHX wagons." Bids should be sent to the Secretary, Commissioner for Railways, Adelaide Street, Brisbane. The closing date is March 14, 1957.

A copy of the tender documents including specifications and drawings is available for loan to United Kingdom firms on application to the Branch (Lacon House, Theobalds Road, W.C.1). The reference E.S.B./2386/57 should be quoted in any correspondence with the Branch.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call from India for steel taper keys. Particulars are as follows:—

10,000 steel taper keys, 8 in., for transverse trough sleepers

The issuing authority is the Director-General of Supplies and Disposals. The tender No. is P/SR-2/18823-G/II. Bids should be sent to the Director-General of Supplies and Disposals, Shahjahan Road, New Delhi. The closing date is February 20, 1957. A set of tender documents, including drawing, is available for loan to United Kingdom firms on application to the Branch (Lacon House, Theobalds Road, W.C.1). Local representation is essential. The reference E.S.B. 2086/57 should be quoted in any correspondence with the Branch.

The Special Register Information Service, Export Services Branch, Board of Trade, reports that a set of the tender documents, including specification and drawings in respect of the call from Thailand for a large quantity of railway points and crossings reported on page 117 of our issue of January 25, has now been received. The documents are available for loan to United Kingdom firms on application to the Branch (Lacon House, Theobalds Road, W.C.1). The reference E.S.B./1259/57 should be quoted in any correspondence with the Branch.

Notes and News

Vacancy for Service Engineer.—A service engineer is required, preferably with a sound knowledge of Wilson gearboxes. See Official Notices on page 148.

Assistant (Press) Required.—British Transport Commission invite applications for the post of assistant (press) at the Commission's headquarters. See Official Notices on page 148.

Vacancy for Assistant Electrical Engineer.—The Nigerian Railway Corporation invites applications for the appointment of an assistant electrical engineer, between 30 and 35 years of age. See Official Notices on page 148.

Senior Traffic Assistant Required.—Albright & Wilson Limited, chemical manufacturers, Oldbury, require for their central traffic department a senior assistant, between 30 and 35 years of age. See Official Notices on page 148.

Maidstone & District Motor Services General Managership.—Applications are invited for the appointment of general manager of Maidstone & District Motor Services Limited. See Official Notices on page 148.

Assistant Civil Engineer Required.—Applications are invited for the post of assistant civil engineer, between 28 and 35 years of age, required by a British railway in Central Africa. See Official Notices on page 148.

Senior and Junior Draughtsmen Required.—Senior and junior draughtsmen, preferably with railway or automatic experience, are required for drawing office situated in the London, N.W.10, area. See Official Notices on page 148.

Rise in I.C. Engine Exports.—Export figures for 1956 for the section of the internal combustion engine industry covered by the British Internal Combustion Engine Manufacturers' Association show that direct exports, including engines for marine purposes, totalled £34,690,000. This is an increase of 17·1 per cent over the direct export figure for 1955, which in

turn showed an increase of 12 per cent on 1954. The 1956 figure is the highest recorded since 1952, when the industry's direct exports reached the record total of £35,350,000. These figures refer to direct exports only, i.e., engine units and spare parts shipped abroad as such. No separate figures are at present available for the very large number of units exported as part of other engineering products such as locomotives, generator sets, and contractor's equipment.

Radiator Equipment Manufacturers Offer Overseas Partnerships.—J. W. Lawrence Limited, Crusader Works, Abbey Lane, Leicester, heat exchange engineers, has decided to offer to provide assistance to set up new radiator enterprises abroad in consideration of appropriate partnership arrangements with reputable interests. The company is prepared to supply complete plant for the manufacture of radiator covers and tanks with the benefit of their own experience in design and manufacture.

Aluminium Coach Doors for British Railways.—In the first paragraph of the article on page 70 of our January 18 issue, it was implied that the doors described were the first of their type to be manufactured for British Railways. In fact cast-aluminium doors of this type were designed and developed by Lightalloys Limited, in conjunction with the Aluminium Development Association, three years ago and have been in production for over two years; some thousands have been supplied to British Railways. Lightalloys Limited also supplied the cast-aluminium doors for the Toronto Subway cars described in our issue of January 8, 1954.

Retirement of Mr. T. D. Slattery.—The accompanying illustration shows Mr. T. D. Slattery, who, as recorded in our January 25 issue, recently retired from the position of General Traffic Manager, British & Irish Railways Inc., New York, with his successor, Mr. G. F. Luther, and senior members of the staff of British & Irish Railways, North America (left to right):—

Seated: Messrs. E. L. Lynch, Area

Representative, Canada; G. F. Luther; T. D. Slattery; W. F. Spree, Deputy Traffic Manager; H. W. Gates, Middle-West Area Representative.

Standing: Messrs. E. Cartwright, Pacific Coast Area Representative; J. W. Pike, Head of Tourist & Counter Section; G. D. Collas, Head of Advertising, Publicity, & Public Relations Section; J. T. Jennings, Outside Passenger Representative; R. F. Rattray, Head of Accounts & Statistics Section.

Master Cutler Urges Use of Railways.—At a recent dinner of the Sheffield Section of the Institute of Transport, Sir Peter Roberts, the Master Cutler, urged industrialists to make greater use of rail transport during the present emergency. "Whether we like it or not, for the next month or two goods must go by rail," he said. "It is no good indulging in wishful thinking. We must face the facts, and the position simply is that diesel oil and petrol are just not available."

Landslide at Falkirk.—The main Edinburgh-Glasgow line of the Scottish Region was blocked for some 12 hr. on January 23 when a landslide occurred, after heavy rain, outside Falkirk High Station. Further falls of earth and stones hampered the work of clearance. Trains were diverted via Polmont Junction, Falkirk Grahamston, and Greenhill. The original fall was discovered at 6 a.m. and one line was cleared for some hours but was covered later by another fall. Normal services were restored by 5.15 p.m. The heavy rain also caused flooding between Glasgow and Helensburgh but there were no serious delays to trains.

British Commonwealth Welding Conference.—The British Commonwealth Welding Conference, organised by the Institute of Welding, will be held at London and Saltburn, June 17-29, 1957. The programme will include the presentation of technical papers on many aspects of welding, visits to various works, and a number of social functions. The Conference

Centre in London from April 1 will be the Institute of Welding, 54, Princes Gate, Exhibition Road, London, S.W.7. Until this date, all communications regarding the Conference should be addressed to the Secretary (C.W.C.), the Institute of Welding, 29, Park Crescent, London, W.1, telephone Langham 7488/9.

Barsi Light Railway Co. Ltd.—The liquidators of the Barsi Light Railway Co. Ltd. have announced that they have received from India a remittance in respect of the sum of Rs. 30 lakhs held on deposit in India pending the decision of the Supreme Court regarding the claim by labour for retrenchment compensation. They are arranging for a second distribution to be made to stockholders as soon as possible of 33s. 4d. per £1 on the present capital of the company (£146,064). This will bring the total amount returned to stockholders to £128 6s. 8d. per £100 of original capital.

Westinghouse Brake & Signal Co. Ltd.—The dividend of the Westinghouse Brake & Signal Co. Ltd. is held at 18 per cent on the capital increased from £2,050,795 to £2,666,034 by a rights issue. Group trading profits for the year ended September 29, 1956, rose by £502,734 to £2,149,794. The amount retained by subsidiaries was £237,862 (£155,214), and profits of the parent company were £503,758 (£494,838). The general reserve was allocated £200,000 (£145,000) to capital reserve for replacement of plant and equipment, but nothing is placed to research and development reserve (£40,000). After providing £275,935 (£212,257) for the dividend the amount carried forward is £368,866 (£340,799).

Rail/Air Service to the Isle of Man.—British Railways and the Lancashire Aircraft Corporation have concluded arrangements whereby combined rail-and-air tickets to the Isle of Man can be obtained from station booking offices throughout North-West England, the Midlands, and in London. The tickets provide for rail travel to Squires Gate Station, Blackpool, and transfer to a connecting aircraft at Squires Gate Airport, only 250 yd. away. Until May 1 the service is being operated as a pilot scheme with a daily flight departing at 11 a.m.; a supplementary flight is arranged when necessary. From May 1 until September 30, there will be five return flights a day between Blackpool and Ronaldsway Airport, Isle of Man, from Monday to Thursday; and on Friday, Saturday, and Sunday up to 19 return flights daily will be made. The flying time is 30 min.

Improved Sailing Ticket Arrangements on Anglo-Irish Routes.—To help bona fide travellers to obtain sailing tickets at peak periods British Railways and the steamship companies concerned are to ask for an instalment of 10s. towards the cost of the travel tickets when application is made for a sailing ticket on some of the sailings by the following routes this year:—Fishguard-Cork; Fishguard-Rosslare; Fishguard-Waterford; Heysham-Belfast; Holyhead-Dun Laoghaire; Liverpool-Belfast; and Liverpool-Dublin. Since the inception of sailing tickets it has been the experience of the carrying companies that in response to applications many more tickets have been issued than used, the difference in some instances being 50 per cent. This has resulted in inconvenience to other travellers whose particular requirements could not be met. The



The retiring General Manager, Mr. T. D. Slattery, and his successor, Mr. G. F. Luther, with senior members of the staff of British & Irish Railways Inc., New York

carrying undertakings point out that where a passenger buys a travel ticket at the same time as application is made for the sailing ticket, the 10s. deposit arrangement does not apply. It is also emphasised that a sailing ticket is necessary for children aged one to three years, but that for these no instalment is required.

Powell Duffryn Limited Interim Dividend.

—The directors of Powell Duffryn Limited have declared an Interim Dividend of 6 per cent actual, less tax, on the 9,660,471 ordinary shares of 10s. each in respect of the year ending March 31, 1957.

Western Region First Aid Awards.—

Meritorious awards for first aid were presented at Paddington last week by Mr. K. W. C. Grand, General Manager, Western Region, to members of the staff. The importance of a knowledge of first aid in the alleviation of suffering and the possible saving of life by prompt and skilled attention was shown by the examples which had earned praise and commendation from the medical profession. One such example is that of Signaller R. K. Cannings and Inspector R. A. Beard, of Bath. They rendered assistance to a porter who, whilst running alongside a train in an attempt to turn the handle of a carriage door, fell between the platform and the train, one of the wheels passing over his left leg. The doctor who dealt with the case in hospital considers the prompt and efficient application of a tourniquet, and the rapid transfer of the patient to hospital, probably saved his life. Awards of a clock and certificate to four members of the staff were made and certificates were granted in a further 15 instances.

Painting of Railway Steamer Presented to City of Belfast.—Lord Rusholme, Chairman of the London Midland Area Board presented to the City of Belfast recently an original framed painting of the new vessel on the Heysham-Belfast service, the *Duke of Lancaster*. The picture is by L. A. Wilcox, and reproductions are displayed at most of the larger British Railways stations. The presentation took place after luncheon at the City Hall, when the paint-

ing was formally handed over by Lord Rusholme to the Lord Mayor, Alderman J. R. Harcourt, in the presence of Mr. David Blee, General Manager of the London Midland Region, as shown in the illustration below.

D.P. Batteries for B.R. Diesels.—Some 300 of the 337 diesel main line and shunting locomotives ordered for British Railways will be fitted with engine starting batteries made by the D.P. Battery Co. Ltd. of Bakewell, Derbyshire. The 1955 programme for 171 main line locomotives, costing about £10,000,000, includes 131 for which D.P. will supply 48-cell batteries from its new Kathanode "R" range and all the 166 diesel-engined shunting locomotives to be built under the British Railways 1957 programme will be similarly equipped but with 40-cell batteries. The D.P. Battery Co. Ltd., has received orders also for 136 batteries each of 40 cells to be installed on the six-car and two-car sets being built for the Southern Region London-Hastings service. The company will, therefore, supply nearly 20,000 diesel engine starting cells as its contribution to current British Railways development programmes.

Record Tourist Year in 1956.—The British Travel & Holidays Association has estimated that about 1,100,000 overseas visitors came to the British Isles last year. Earnings from this traffic, including fare payments to British shipping and air lines, are estimated to have amounted to £175 million. Visitors from the United States numbered about 275,000 and their expenditure, including fare payments, totalled £48 million. In 1956 Britain welcomed about 570,000 visitors from Europe, 58,000 from Canada, 160,000 from other Commonwealth countries, and 37,000 from the rest of the world. It is hoped that an easing of the international situation and the provision of generous petrol allowances for overseas visitors will result in continued increases in Britain's tourist traffic in 1957. An overall increase of about five per cent in traffic is expected this year, giving a total of 1,160,000 visitors and earnings estimated at £190 million.

Forthcoming Meetings

Open currently and until further notice.—

British Transport Commission: Historical Exhibition "Transport Treasures" in Shareholders' Meeting Room, Euston Station, from 10 a.m. to 6 p.m. on weekdays, and 2 to 6 p.m. on Sundays. Admission 6d.

February 5 (Tue.).—Institute of Transport, at the Connaught Rooms, Great Queen Street, London, W.C.2, at 12.30 for 1 p.m. Informal luncheon; principal guest Major-General Sir Reginald Kerr.

February 5 (Tue.).—Permanent Way Institution, Leeds & Bradford Section, in the British Railways Social & Recreation Club, Ellis Court, Leeds City North Station, at 7 p.m. Paper on "Mechanised relaying in a single-line tunnel," illustrated by lantern slides, by Mr. F. Everitt.

February 5 (Tue.).—Stephenson Locomotive Society, North Eastern Area, at the Conservative Association Rooms, 2, Jesmond Road, Newcastle-upon-Tyne, 2, at 7 p.m. Paper on "A museum for transport," illustrated by lantern slides, by Mr. J. H. Scholes.

February 5 (Tue.).—Institute of Transport, North Western Section, at the Chartered Accountants' Hall, Manchester, at 6 p.m. Paper on "Diesel traction operation," by Mr. M. J. Adkinson and Mr. A. Higginson.

February 6 (Wed.).—Electric Railway Society, at the Fred Tallant Hall, 153, Drummond Street, London, N.W.1, at 7.15 p.m. Paper by Mr. R. A. Nash on "Metropolitan Railway tickets."

February 7 (Thu.).—The Model Railway Club, at Caxton Hall, Westminster, S.W.1, at 7.45 p.m. Talk on "Railway Oddities," by Mr. G. Hatherill.

February 7 (Thu.).—Institution of Electrical Engineers, at Savoy Place, London, W.C.2, at 5.30 p.m. Sir Ifor Evans: Third Graham Clark Lecture on "The place of engineering in university education." Joint meeting with the Institutions of Civil and Mechanical Engineers.

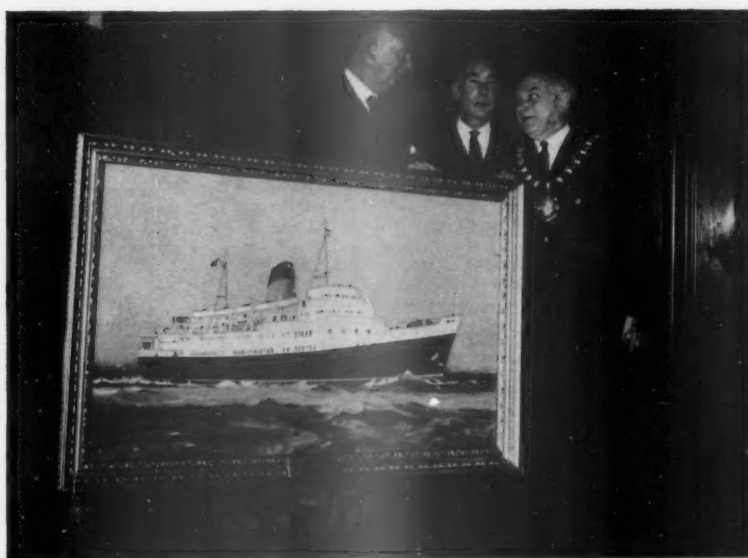
February 7 (Thu.).—Institute of Traffic Administration, Portsmouth Centre, at the Chamber of Commerce, Portsmouth, at 7.30 p.m. Paper on "British Railways Modernisation," by Mr. D. Viney.

February 8 (Fri.).—Stephenson Locomotive Society, Scottish Area, at British Railways Offices, 302, Buchanan Street, Glasgow, at 7.30 p.m. Ten-minute papers by members.

February 8 (Fri.).—Institution of Mechanical Engineers, at 1, Birdcage Walk, Westminster, S.W.1, at 6 p.m. Paper on "The economics of plant replacement and renewals," by Mr. C. W. Griffiths.

February 11 (Mon.).—Institute of Transport, at the Jarvis Hall (R.I.B.A.), 66, Portland Place, London, W.1, at 5.45 p.m. Brancker Memorial Lecture.

February 12 (Tue.).—Institute of Transport, Yorkshire Section, at the Great Northern Hotel, Wellington Street, Leeds, 1, at 6.30 p.m. Paper on "Port operations," by Mr. S. A. Finnis, Chief Docks Manager, B.T.C., Southampton.



Lord Rusholme, Mr. David Blee, and the Lord Mayor at the Belfast City Hall at the presentation to the City of Belfast of the painting of ss. "Duke of Lancaster"

February 13 (Wed.).—Institution of Railway Signal Engineers, York Section, at the Signalling School, Toft Green, York, at 5.30 p.m. Paper on "History and development of telecommunication apparatus," by Mr. R. Patrick.

February 13 (Wed.).—Institute of Traffic Administration, Preston Centre, at the Victoria & Station Hotel, Preston, at 7.30 p.m. Paper on "Handling and transport of abnormal loads," by Mr. A. Miller.

February 14 (Thu.).—Stephenson Locomotive Society, at Caxton Hall, Westminster, London, S.W.1, at 6.45 p.m. Lecture on "A rail cruise from Ostend to Naples," by Mr. A. P. Miall.

February 16 (Sat.).—Stephenson Locomotive Society, Leeds Centre, at the Griffin Hotel, at 6.30 p.m. Paper on "Tralee & Dingle Railway," illustrated by lantern slides, by Mr. P. Whitehouse.

February 16 (Sat.).—Stephenson Locomotive Society, Liverpool Centre, in the Conference Room, Central Station, at 7.30 p.m. Paper on "The Liverpool Overhead Railway," by Mr. Maxwell Roston.

February 16 (Sat.).—Permanent Way Institution, East Anglia Section, at Ipswich at 2.15 p.m. Lantern slides "—Summer Convention, 1956. Paper "Recent developments in permanent way design," by Mr. L. G. B. Rock. "Coast protection work at Folkestone Warren."

OFFICIAL NOTICES

SERVICE ENGINEER. preferably with sound knowledge of Wilson Gearboxes and Railway operation, required by manufacturers in connection with British Railways' Dieselisation programme. Self-Changing Gears Limited, Lythalls Lane, Coventry. Tel. 89081.

DRAUGHTSMEN, SENIOR AND JUNIOR. preferably with railway experience or automotive experience, required for Drawing Office situated in London area, N.W.10. Apply in writing, giving age, details of experience and salary required, to General Manager, British United Traction Limited, 14, Hanover Square, London, W.1.

SENIOR TRAFFIC ASSISTANT required by Albright & Wilson Limited, chemical manufacturers, Oldbury, for their Central Traffic Department. Age about 30/35. Experience in transport and/or Shipping essential. Preference will be given to candidate who has attained the status of A.M.Inst.T. or equivalent. Non-contributory pension scheme. Good commencing salary. Apply Staff Officer, Albright & Wilson Limited (Ref. 349), P.O. Box 3, Oldbury, Birmingham.

WELL-ESTABLISHED manufacturers' Representatives situated in City of London desires further **BRITISH REPRESENTATIONS** to augment existing British and Continental connections. Clientele includes contractors, oil companies, consulting engineers, railway companies, home and overseas administrations, shipowners and merchant houses. Hand and machine tools, non-ferrous products, electrical products are especially interesting. Reply Box 227, The Railway Gazette, 33, Tothill Street, London, S.W.1.

BRITISH TRANSPORT COMMISSION invite applications for the post of **ASSISTANT (PRESS)** in the Commission's headquarters. Duties include handling of Press inquiries, and the preparation of editorial material for both general and technical journals. Previous experience of transport subjects and in the presentation of technical material will be an advantage. Salary range £965-£1,065, according to qualifications and experience. Applications, which should preferably be accompanied by specimens of literary work, to Manpower Adviser, B.T.C., 222, Marylebone Road, N.W.1, within 14 days. (Ref. B.15.)

CIVIL ENGINEER.—British Railways in Central Africa requires an **ASSISTANT CIVIL ENGINEER**; age between 28-35, married man preferred. Qualifications: Engineering degree and/or A.M.I.C.E., with at least three years' experience on railway maintenance and construction. Salary £1,050×£30-£1,100 first tour, with prospect of £1,140×£30-£1,200; family allowance; unfurnished house rent free; contributory pension and medical aid schemes; six months' leave on full pay every

3½ years, with free passages. Write, giving details of age, marital status, qualifications, etc., to Box "K.Y.", c/o J. W. Vickers Co. Ltd., 7/8, Great Winchester Street, London, E.C.2.

POWER RECTIFIERS.—A large manufacturing firm in the Midlands requires an **ENGINEER** to assist in development and design of high power rectifier equipments. The department handles rectifiers of all modern types and for all kinds of applications, offering scope for exceptionally wide experience and interest, with good salary and prospects. Previous rectifier experience not necessary, but a Degree or approximate equivalent and some practical experience are desirable. Very good residential district, with excellent educational facilities of all kinds. Apply with full details to Box 233, The Railway Gazette, 33, Tothill Street, London, S.W.1.

MAIDSTONE & DISTRICT MOTOR SERVICES, LIMITED GENERAL MANAGERSHIP.—Applications are invited for the appointment of **GENERAL MANAGER** of Maidstone & District Motor Services Limited, and its subsidiary, the Hastings Tramways Company, which will become vacant shortly. The combined fleet strength of the two companies is approximately 900 vehicles, and the Companies' operations, comprising stage and express carriage services, excursions and tours, extend over a wide area of West Kent and East Sussex. Applications (which will be treated in strict confidence) should set out in chronological order the candidate's age, history, qualifications and experience (in detail). They should be addressed to Mr. R. P. Beddow, Chairman, Maidstone & District Motor Services Limited, Stratton House, Piccadilly, W.1, to reach him not later than 15th February, 1957.

THE Nigerian Railway Corporation invite applications for appointment as **ASSISTANT ELECTRICAL ENGINEER**. Salary: £800×£50-£1,600, plus overseas pay £300. Commencing salary according to qualifications and experience. Qualifications: Candidates, between 30 and 35 years of age, must have served an apprenticeship with a reputable firm of Electrical Engineers, and have had experience in both Workshops and Drawing Office, with particular emphasis on installations of H.T. and L.T. Power equipment and distribution systems. They should have had some administrative experience. Corporate Membership of the Institute of Electrical Engineers is desirable, but candidates must have passed or hold exemption from Sections A and B of the examination of the Institution of Electrical Engineers. Appointment either in pensionable post or on contract terms, carrying gratuity of 20 per cent of total emoluments p.a. Terms of service provide for tours of 15 months each, seven days full pay leave per month of service, free passages for officer and wife, and separate domicile allowance of £75 per annum each in respect of maximum of two children while in U.K., or cost of their passage to and from Nigeria, if under 18 years of age. Part furnished quarters provided at low rental. Outfit allowance £60, payable on first appointment. Applications to the London Representative, Nigerian Railway Corporation, 11, Manchester Street, London, W.1.

THE Proprietors of Patent No. 645669 for "Straightening Rails and Rollers therefor" desire to secure commercial exploitation by Licence or otherwise in the United Kingdom. Replies to Hashtine Lake & Co., 25, Southampton Buildings, Chancery Lane, London, W.C.2.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25s. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press, Limited, 33, Tothill Street, London, S.W.1.

Railway Stock Market

Although the recent substantial gains in stock markets led to a fair amount of profit-taking, fresh buyers quickly appeared and the upward trend has been maintained in British Funds and industrial shares. This is the result of the continued confidence that a lower Bank rate is imminent, but also of the view that there are possibilities of the Budget bringing a reduction in income tax. A cut in the latter would also make British Funds more attractive and stimulate markets generally. It is by no means certain that the income tax hopes will be borne out, but markets are trying to discount the possibility of good news in the Budget a long way in advance. With the yields on British Funds gradually contracting, those on industrial shares become more attractive, which partly explains why many shares have been in good demand although there is very little possibility of higher dividends this year. Although the pace of the rise must be expected to slacken, it would not be surprising if stock markets remain strong

and active until the Budget. New issues are likely to become more frequent and will absorb a large amount of money seeking investment.

With British Funds and industrial shares again taking the lion's share of business on the Stock Exchange, it is hardly surprising that foreign and overseas rails have received only moderate attention, though they recorded more dealings than a week ago.

Antofagasta ordinary stock was active, and at 31½ was fractionally higher with the preference stock unchanged at 45½. Costa Rica ordinary stock held its rise, dealings up to 28½ being recorded.

In other directions, San Paulo 3s. units have changed hands around 3s. 4½d., while Taltal shares were again quoted at 12s. and Nitrate Rails at 20s.

United of Havana stocks remained firmly held, having remained under the influence of views as to break-up estimates. The second income stock was again quoted at 7½ and the consolidated stock at 2½.

Chilean Northern first debentures receded to 43½, and elsewhere, Guayaquil & Quito 5 per cent bonds remained at 92. Mexican Central "A" bearer debentures have held steady at 68½. International of Central America shares eased to 32½, but the gold bonds were again quoted at £175½.

Among Indian stocks the feature has been the big marking up of Barsi Light Railway stock from 60 to 165 following news of the second liquidation distribution. Last week business was marked in this stock at 61, or less than half its present level.

Nyasaland Railways shares have continued in better demand and strengthened further from 10s. 4½d. to 10s. 9d. with the 3 per cent debentures showing business at 58. Despite the reactionary trend of Wall Street, Canadian Pacifics at \$61½ were the same as a week ago. The 4 per cent preference stock attracted buyers and moved up further from \$61 to \$62 on a more general recognition of the attractive yield and the fact that, although the stock is non-cumulative as to dividend, this is only of academic importance, because on the basis of last year's profits, dividend requirements are covered many times over. Canadian Pacific 4 per cent debentures also moved higher—from £70½ to £72½.

White Pass shares eased fractionally to \$18½ and Peru Transport shares were again slightly over \$1½.

The shares of locomotive builders and engineers have attracted more buying interest this week because of wider recognition of the good yields and the general assumption that dividends for the time being should be maintained, and that, looking ahead to the future, the industry should have scope for good improvement in profits. Compared with a week ago, Beyer Peacock shares have moved up further from 35s. to 40s., while there was good demand for Westinghouse Brake, which were 79s. 3d. compared with 76s. a week ago. Wagon Repairs 5s. shares were 12s. 3d. and Charles Roberts 5s. shares slightly higher on the week at 11s. 10½d. Birmingham Carriage shares strengthened from 15s. 3d. to 15s. 10½d. and North British Locomotive from 10s. 9d. to 11s., but Hurst Nelson eased to 36s. 9d. Gloucester Wagon 10s. shares moved up to 13s.

Steels were better, with Stewarts and Lloyds 1s. higher on balance at 59s. 3d. but there was some profit-taking in electrical equipment and kindred shares. Associated Electrical, for instance, were 68s. compared with 72s. 3d. a week ago.

